2018

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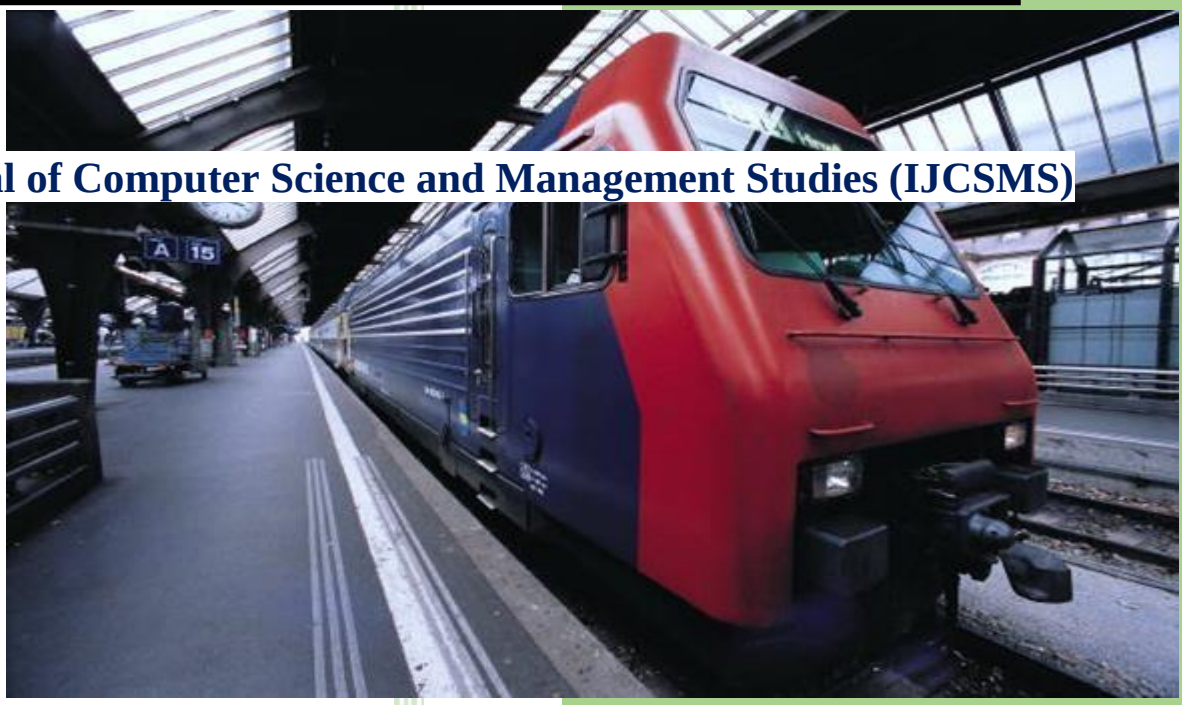

Published Online Association with

International Journal of Computer Science and Management Studies (IJCSMS)

ISSN 2231-5268

National Conference on Multidisciplinary Research and Innovation (ICMRI-2018)

20th & 21st September 2018

Organized by:

Department of Mechanical & Civil Engineering

College of Engineering Bhubaneswar

Plot No. 1(A), CNI Complex, Patia, Bhubaneswar-751024, Odisha, India

ABOUT THE CONFERENCE

The Department of Mechanical & Civil Engineering, College of Engineering Bhubaneswar is glad to announce the "National Conference on Multidisciplinary Research and Innovation (ICMRI-2018)" on 20th & 21st September 2018 at College of Engineering Bhubaneswar. ICMRI provided an ideal academic platform for leading academicians, scientists and research scholars to exchange and share their experiences and research results about all aspects of multidisciplinary studies. The conference presented emerging technologies and novel research results in all aspects of Sciences, Engineering, Management and Humanities. An effort was made to make the audience aware of multidisciplinary fields and the recent advances in these fields on various aspects. Participation from diverse groups of people and discussions provided useful ways in conquering challenges which mankind is facing today. Therefore, the emphasis was laid on paying attention towards nature and to bring into light all possible measures to resolve the various issues so that one can contribute in maintaining the life on Earth for longer period.

ABOUT THE INSTITUTE

College of Engineering Bhubaneswar has upheld its leading place in the domain of the technical education since 1999. The institute is located in the eastern region of India, at the heart of the capital city Bhubaneswar, Odisha. In response to the expectations of quality technical education, our college is approved by the All India Council for Technical Education (AICTE), New Delhi, Government of India and affiliated to Biju Patnaik University of Technology (BPUT), Government of Odisha, It has trained, experienced dedicated faculty members. The introduction of post-graduate programmes has given impetus for research and innovation. Many of our students and faculty have been presenting papers at national and international conferences, and many have published their work in research journals of repute. Our excellence in academic and related areas has been well-recognized. The corporate world has also taken note of our efforts and good work. We have both faculty and student chapters of the Indian Society for Technical Education (ISTE) and the Institution of Engineers (IE). We also have various departmental and institute-level societies and clubs to encourage students to look beyond examination-centric learning, to explore and innovate, and to be life-long learners. Physical education is as important, if not more, than other domains of learning. A healthy mind requires a healthy body. We have excellent sports & games infrastructure. We equip our students with all the necessary skill sets in terms of technical knowledge, interpersonal skills, communication, and leadership skills to get placed in highly reputed companies.

ABOUT THE DEPARTMENTS

The Department of Mechanical Engineering is one of the oldest departments of the College of Engineering Bhubaneswar. It has been established in 2003. The Department of Mechanical Engineering has been actively engaged in teaching and research in diverse fields of Mechanical Engineering. With excellent faculty, the Department of Mechanical Engineering offers undergraduate (B.Tech) and graduate (M.Tech) in Heat Power Engineering.

The Department of Civil Engineering is one of the oldest departments of the College of Engineering Bhubaneswar. It has been established in 2004. The Department of Civil Engineering has been actively engaged in teaching and research in diverse fields of Civil Engineering. With excellent faculty, the Department of Civil Engineering offers undergraduate (B.Tech) and graduate (M.Tech) in Structural & Foundation Engineering, Soil Mechanics & Foundation Engineering.

College of Engineering Bhubaneswar
Plot No. 1(A), CNI Complex, Patia, Bhubaneswar

MESSAGE FROM CHAIRMAN

Er. Prabhat Ranjan Mallick
Chairman

On behalf of College of Engineering Bhubaneswar, I extend a very warm welcome to all the delegates and participants from various organizations to **National Conference on Multidisciplinary Research and Innovation (ICMRI-2018).** The Institute has taken on the mantle of greatness and is dedicated to giving the students a place where they can study, develop, and widen their knowledge by pursuing a variety of academic interests.

I would like to thank the faculty & staff members, the organizers of ICMRI 2018 and students for their contribution in successfully organizing and managing the event.

I hope all the participants will extract the benefits of the said conference for their future growth.

Thank you!

Er. Prabhat Ranjan Mallick

(Chairman)

College of Engineering Bhubaneswar
Plot No. 1(A), CNI Complex, Patia, Bhubaneswar

MESSAGE FROM VICE-CHAIRMAN

Mrs. Namita Mallick
Vice-Chairman

I am glad to know that Department of Mechanical and Civil Engineering, College of Engineering Bhubaneswar is going to organize **National Conference on Multidisciplinary Research and Innovation (ICMRI-2018) on 20th and 21st September 2018.** These conferences are designed to distribute dormant and novel concepts, which are very beneficial for industry researchers and scholars to succeed in their research-focused endeavours. I sincerely appreciate the conference organizing committee.

I send out my best wishes for the conference to be a huge success.

Mrs. Namita Mallick
Vice-Chairman

College of Engineering Bhubaneswar
Plot No. 1(A), CNI Complex, Patia, Bhubaneswar

MESSAGE FROM PRINCIPAL

Prof. (Dr.) Subrat Kumar Mohanty
Principal

It gives me immense pleasure to known that Department of Mechanical Engineering and Department of Civil Engineering are conducting a **National conference on Multidisciplinary Research and Innovation (ICMRI-2018) on 20th and 21st September 2018.**

I hope that this conference would certainly induce innovative ideas among the participants paving way for new inventions and technologies in their respective area of interests.

I congratulate the convener and the entire organizing team for their contribution in successfully organizing and managing the event.

Prof. (Dr.) Subrat Kumar Mohanty
Principal

College of Engineering Bhubaneswar
Plot No. 1(A), CNI Complex, Patia, Bhubaneswar

MESSAGE FROM CONVENER

Prof. (Dr.) Sujit Kumar Khuntia
Convener

I am extremely glad to organize **National conference on Multidisciplinary Research and Innovation (ICMRI-2018) on 20th and 21st September 2018.** ICMRI provided an ideal academic platform for leading academicians, scientists and research scholars to exchange and share their experiences and research results about all aspects of multidisciplinary studies. The conference presented emerging technologies and novel research results in all aspects of Sciences, Engineering, Management and Humanities. An effort was made to make the audience aware of multidisciplinary fields and the recent advances in these fields on various aspects. Participation from diverse groups of people and discussions provided useful ways in conquering challenges which mankind is facing today. Therefore, the emphasis was laid on paying attention towards nature and to bring into light all possible measures to resolve the various issues so that one can contribute in maintaining the life on Earth for longer period.

As a convener I extend my gratitude to all Professors, Invited speakers, Chief guests and all the delegates and participants for their wholehearted contribution in the National Conference.

I wish the conference and the Proceedings a grand success.

Prof. (Dr.) Sujit Kumar Khuntia
Convener

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The effect of social media on the decision-making process

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Abstract
The focus of the research is the impact of social media on individual decision making within the confines of the mobile phone industry. Multiple research questions were developed to gain a deeper understanding of whether social media platforms have a clear way of influencing mobile adoption and if as it is reflected in the user's choices. The answers to these questions were is proposed through an interpretivist approach and an experimental method which consisted of a practical introduction of the participants to the game in question, a semi-structured qualitative interview and their observations. The The study concluded that social media can be a persuasive factor in decision making process, even surpassing all other factors for some participants. In addition, social media trends have a great influence on the image of a mobile game, both positively and negative in nature, but the effect is the same regardless of the game in question as it relates to social desirability. About information, It also assessed completion and concluded that social media is a the whole has a great influence on individuals and decisions related to mobile games.

Introduction
Until you make the unconscious conscious, it will direct your life and you will call it fate.Carl Jung (1875-1961).With this quote, Carl Jung expressed words that many can relate to. Sometimes Decisions made and the reasons behind them make little or no difference in retrospect makes no sense at all. One example of such a mysterious but common behavior is an impulse shopping during the weekly shopping trip. It is not that these products were it was much needed, but the purchase decision was still made, due to the motives but rarely revealed and reflected in everyday life. On an individual level many do seemingly trivial actions without focusing on the reasons they have done this certain thing and it is possible that they have nothing to do internal controls in themselves, but are the result of external disturbances. With the increase in internet accessibility and coverage, online resources have changed one of the most common ways it affects people in particular because people spend time online. It is believed that more people you have a phone like a toothbrushand most people use the internet their mobile devices [4]. Moreover, as of 2017, there are social media platforms decided to spend more than 30% of internet users and Time spent on the Internet and them has become a major attraction online, surpassing the pornography industry who was previously a director . In addition, television has an effect The Internet has overtaken it as the main source of information and opinions producer for the younger generation. Therefore, it can be agreed thatsocial media is one of the most attention-grabbing parts of the Internet. However, regardless social platform is becoming such a big part of people and life, it is a relatively new form media and little research has been done on how it affects people and how people are aware of its impact at industry level. Despite the large number of industries and sectors using social media affects individuals and the

TECHNOLOGY IS ACTING AS A BOON OR BANE OR CAST PEARLS BEFORE SWINE? A DESCRIPTIVE STUDY

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Abstract*:*
A social networking service, also known as a social networking site or (SNS), is an online platform that allows people to create social networks or social relationships with others who share similar personal or career interests, activities, backgrounds, or real-life connections. . The most popular social networks are integrated YouTube,. The largest Facebook network on the internet both in terms of total number of users and name recognition. We prefer social networking sites because most of us probably use them for general communication with other people, but also to keep up to date with what is happening in the world around us. Almost a third of social media users admit to having used the platforms to buy new products. When we talk about danger, technology and teenagers, we usually think about dangerous things or sex, online predators and cyberbullying, humiliating others or public shaming, viral video companies, comparison, party pictures. get rid of social media addiction, limit yourself, find a new hobby, spend more time with family, less distractions. Social media can be used effectively as a hunting tool, building and developing your personal and professional networks. now we have decided that we should use social media for interpersonal growth and increase narcissism in many internet users.

This means that helping people, explaining to people, making people better is good, but in some cases the recipients are so stupid, ungrateful, unwilling to learn or get help or help themselves that all your efforts are wasted. you had pearls to share with the poor who might deserve them, you would aim at people who might benefit from them — and not throw them to a herd of dirty swine who cannot appreciate. them It is the same with pearls of wisdom, jewels of knowledge or advice that are simply wasted on some people. let's say you are the world's greatest opera tenor. you have a chance to perform before the hyena pack. how much do they appreciate your art? none of them care. or let's say you want to help a family out of poverty. you provide them a safe place to live. but whatever money they get, they just spend it on booze and drugs. the safe place you gave them...they just throw it away. These are examples of casting pearls before swine. Pigs (pigs) do not know or care about the value of pearls. They look like food to them, they try to eat them, the pearls are destroyed in the process. You have lost your precious gems..

ENHANCING COMMUNICATION SKILLS IN ENGLISH THROUGH INNOVATIVE BRAINSTORMING TECHNIQUES

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Abstract*:*
The purpose of this paper is to investigate the effect of using brainstorming strategies on the development of English language skills. Brainstorming is one of the most well-known techniques and an effective creative tool for developing as many ideas as possible. In the classroom, it can be used as a method to encourage students to think more freely and creatively in order to perform or perform well in any skill. But in today's situation where technology develops faster and allows students to depend on it without having to think hard and generate ideas, it creates a foggy feeling among students. This makes it easier for students to access information by searching websites without brainstorming. The more brainstorming takes place, the more creative ideas can be replicated, generating ideas for effective use in teaching and learning English. However, English language learners have several challenges that must be overcome in order to use their language skills effectively. This is possible only through innovative brainstorming techniques, and their need is mandatory to acquire language skills in the current situation..

Introduction

Teaching foreign languages, especially English, is one of the most important educational programs in Indonesia. Today, in higher education, for example at the university level, the learning process is still developing. Developmental orientation is a way to improve student performance, especially when it comes to communication. (Syukri, 2015, p.). In the process of learning English, most teachers did not use the possible approaches of students and #039; acquisitions Brainstorming is a good way to get information about student performance using short-term or long-term memory. The researcher found that in many areas of education, teachers were not told about learning, learning objectives, especially about indicators of success in learning English. This is related to the fact that it aims to experimentally identify the interaction of thought processes and their interaction without significantly changing the design process. Brainstorming is an effective technique to develop and improve the critical thinking of science students, because it helps to activate the student to "think about exploring new possibilities rather than receiving information from the teacher. This strategy was developed by researchers to support and improve the critical thinking of students. speaking skills while learning English. The purpose of brainstorming is to activate students and #039; creative thinking skills to combine new information with old, make new connections, organize or translate information and make connections between different concepts, generate new ideas by making new connections .and applying information in new areas..

Using people as a cultural resource to improve English language skills.

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Abstract*:*
The study on „Using Folktales as a Cultural Resource to Enhance English Language Skills" aims to study, the development of English language skills after using folktales as a resource to enhance the English language skills and evaluate the development of English skills. This article highlights the multifaceted rationale for using folktales to teach English languages. It presents features of folktales which have the potentials to develop English language acquisition. The article also provides implications for how folktales can be used effectively in language classrooms for young learners.

Introduction

In today's globalized economy, it's common for people to work in multicultural environments, where English is often the common language.However, this can be challenging, especially for those whose native language is not English. Whether you're an expat, an immigrant, or simply working with international colleagues or guests, being able to communicate effectively in English is crucial. As more and more companies expand globally, the workplace is becoming increasingly diverse, with employees from different cultural backgrounds working together. With this diversity, English has become the most commonly spoken language in many multinational corporations.For non-native English speakers, improving their English skills is essential to communicate effectively with colleagues and clients. English language proficiency can also lead to career growth and opportunities, as it is often a requirement for promotion or new job roles.Therefore, it is crucial to recognize the importance of English language skills in a multicultural workplace. In this blog post, we'll discuss ways to improve your English communication skills and strategies for effective communication with English-speaking guests.

Syntheses, crystal structures and solid-state spectroscopic properties of the new zincate (II) complex N-(4-substituted phenyl)-N'-(4-nitrophenyl)oxamate

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Abstract:

The electronic effects electron donating and withdrawing groups R on the properties of *N*-(4-R-phenyl)-*N'*-(4-nitrophenyl)oxamito zincate(II) complexes was investigated featuring R = Me (a), H (b), F (c), Cl (d) and Br (e). The *N*-(4-R-phenyl)-*N'*-(4-nitrophenyl)oxamide ligands 2 were synthesized by reacting ethyl 4-nitrooxanilate with the respective 4-substituted anilines. Sub- sequent treatment with [*n*Bu_4N]OH and [$Zn(OAc)_2(H_2O)_2$] gave the respective zincate complexes [*n*Bu_4N]$_2$[Zn(*N*-(4-nitrophenyl)-*N'*-(4-substituted phenyl)oxamides)$_2$] (3). Spectroscopic methods were used to describe compounds 2a–e and 3a–e. Single crystal X-ray diffraction analysis confirmed the formation of 3a–c in the solid state. The tetrahedral coordination sphere of the zinc (II) ion fea-tures four amide nitrogen donor atoms based on two ethanediamide ligands. The UV–Vis spectra of Complexes 3a–e display a characteristic LLCT (p ? p *) band, which was confirmed by TD-DFT calculations. DFT calculations show that the Zn(II) orbitals do not contribute to the HOMO or LUMO, with the latter being primarily found on the two 4-nitrophenyl rings for compounds 3a — e, while the HOMO-1 and HOMO are located on the 4-substituted phenyl rings. Notably, HOMOand LUMO energies and gabs do not differ significantly. Transitions from HOMO to LUMO + 1 are the most important for all ligands. The luminescence properties of solid compounds 3a — e were also investigated at 298 K. Solid state photoluminescence studies reveal that these com- plexes emit strong yellow-orange luminescence at 450–600 nm with a maximum at about ~ 500 nm in the cyan region. Furthermore, the thermal stabilities of compounds 3a--e have been investigate.

Introduction:

Organic materials have recently been widely used in the manufacturing of organic light emitting diodes as hole transport layers, electron injection-transport layers, dopants, and hosts (OLEDs). (Jurow, 2016) They have a lot of potential uses in solid state lighting, flexible displays, and flat panel displays because of their features including ultra-thin thickness, rapid switching, low driving voltage, high viewing angle, and ability to generate light without any external backlight sources. (Reineke, 2009) Extensive research is being carried out in order to improve the production of new materials which can produce of new materials which can produce white emissions. New materials are also being studied for their ability to emit light without the usage of external backlight sources, due to their enticing custom-tailored geometries and synthesis flexibility. (Koch, 2007).

In the literature, bright blue luminous metal complexes with ligands containing nitrogen donor atoms have been reported. (Che et al., 2001; Wu et al., 2000; AlDamen et al., 2016; Rufino-Felipe et al., 2016; Zhang et al., 2013; Wang, 2001; Abu-Yamin et al., 2022) Zn(II) complexes containing Schiff bases have recently attracted attention due to their significant photoluminescence emissions (PL). 8-Hydroxyquinolinate or 7-azaindolate zinc(II) complexes, for example, play an important role in blue OLED displays.

Isolation of antibacterial compounds and quercetin from Digeramuricata

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Abstract:
Synthetic herbicides are available for weed control, but there are many problems with these herbicides. Ecological herbicides derived from plants are a better alternative to synthetic ones. Despite this, herbicidal activity of Digera muricata extracts has been reported, but no studies have been conducted on the isolation and identification of herbicidal compounds from D. muricata. This report reports the identification of two herbicidal compounds from the chloroform extract of D. muricata. The chloroform extract was initially tested on germination and early growth of two weeds, Avenafatua and Melilotusindicus, and wheat, where significant reductions in senescence and growth were observed for both weeds. From eight different fractions obtained by different chromatographic methods, fractions 2 and 7 were found to be phytotoxic to both test cultures. Herbicidal efficacy was tested at concentrations of 200, 150, 100, 50, 25 lg/ml. These two fractions were further purified by reversed phase high-performance liquid chromatography (RP-HPLC). Fraction 2 gave 3 subfractions (2A, 2Band2C), while fraction 7 gave 2 subfractions (7A, 7B). Fraction 2B reduced seed germination by 43%, 53% and 57% shoot dry weight and root dry weight A, while these values compared to M. indicus were 50%, 81% and 84%. Fraction 7A caused 25%, 36% and 42% reductions in germination, shoot dry weight and root dry weight ofA. fatua seeds, while these values were 35%, 62% and 69% for M. indicus. , respectively at a concentration of 200 lg/ml. .fatuaandM.indicate. The herbicidal activity of these two fractions was found to be insignificant on wheat. Fourier transform infrared spectroscopy (FT-IR), elemental field analysis (C, H) and nuclear magnetism. Resonance analysis (NMR) of these two fractions showing the presence of quercetin (fraction 2B) and b-caryophyllene (fraction 7A). The isolated compounds significantly reduced the biomass of both weeds in post-emergence bioassays. Plasma membrane integrity tests showed leakage of electrolytes from treated leaf blades of both weeds. Quercetin and b-caryophyllene isolated from D. muricata were found to be toxic to both test plants without harming wheat.

Introduction

Grasses increase abiotic stress such as water, light, nutrient use and insufficiency of growth resources (Soares et al., 2019; Silva et al., 2013). The roots of various plants secrete certain chemicals that are produced during metabolism and are called allelochemicals (Broeckling et al., 2008). Plants use these allelochemicals to communicate with other plants and the environment (Aslani et al., 2014). These allelochemicals can disrupt the physiology of other plants and increase or slow down the germination of receptive sounds (Majeedetal., 2017). The Pirsabaq variety did not fully germinate due to Melilotusindicus water extracts (Siyaretal., 2017, 2017, 2017, 2017, 2017-2017). indicus and Polypogon hissaricus are the most dangerous weeds that reduce wheat

Lithium-Ion Battery for Electric Vehicle Applications and Beyond

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Abstract
Among the many types of batteries, lithium-ion batteries have become the focus of electric vehicle (EV) research due to their many advantages. However, these technologies have many limitations. This article provides an overview of recent research and development of lithium-ion batteries for electric vehicles. Widely used battery sorting methods are presented. The characteristics and challenges of battery remaining life (RUL) and state of charge (SOC) estimation are critically reviewed and strategies to address these issues are discussed. A new method for sorting end-of-life lithium-ion batteries and estimating the RUL and SOC values of end-of-life lithium-ion batteries is proposed.

Introduction

Gasoline and diesel vehicles produce large amounts of carbon dioxide emissions, which have serious consequences for global warming [1]. In order not to aggravate the above problems, the governments of the United Kingdom, France, Germany, the Netherlands and other countries have recently announced a schedule for the elimination of the production of gasoline vehicles, most of which will be between 2025 and 2040 [2]. Electric cars will largely replace gasoline-powered vehicles in the near future. A rechargeable battery is a key component of an electric car that requires high performance [3].
Compared with other common rechargeable batteries such as Ni-Cd, Ni-MH and lead-acid batteries, lithium-ion batteries have high energy and power density, long service life and environmental friendliness, and therefore have been widely used in consumer electronics. 4]. However, in high-power applications such as electric vehicles and energy storage systems, a large number of batteries must be packaged in series and parallel to form a battery pack. This creates cost, stability, consistency and security. These problems limit the use of lithium-ion batteries.

Lithium-ion batteries must be used in a safe and reliable operating range affected by charge rate, temperature and voltage range. Exceeding these limits will cause rapid battery performance degradation and even safety issues. In addition, to ensure the reliable operation of Li-ion batteries, it is important to estimate the capacity of the Li-ion battery and predict the RUL during the service life. In addition, processes necessary to ensure cell reliability and safety are cell sorting methods, which refer to the selection of qualified cells from raw cells according to quantitative criteria such as capacity, resistance, open circuit voltage (OCV). Discontinued batteries of electric cars still contain 80% of primary energy [5]. Recycling end-of-life electric car batteries in applications, energy storage systems and renewable energy devices is the right way to make the best use of old batteries. Used batteries are cheaper than brand new batteries, but the reliability of recycled batteries becomes an important issue. This is because these batteries can suffer failures and reduced performance [6]. All these studies are presented in this article.

One Type of Symmetric Matrix with Harmonic Pell Entries, Its Inversion, Permanents and Some Norm

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Abstract:

The Pell numbers, named after the English diplomat and mathematician John Pell, are studied by many authors. At this work, by inspiring the definition harmonic numbers, we define harmonic Pell numbers. Moreover, we construct one type of symmetric matrix family whose elements are harmonic Pell numbers and its Hadamard exponential matrix. We investigate some linear algebraic properties and obtain inequalities by using matrix norms. Furthermore, some summation identities for harmonic Pell numbers are obtained. Finally, we give a MATLAB-R2016a code which writes the matrix with harmonic Pell entries and calculates some norms and bounds for the Hadamard exponential matrix.

Introduction

The Pell numbers [1] which are defined by the recurrence relation, for $n \geq 0$:

$$P_{n+2} = 2P_{n+1} + P_n$$

with $P_0 = 0$, $P_1 = 1$, provide the mathematical community with their magnificent beauty, ubiquity and applicability, offering great opportunities to experiment, explore and solve problems, and their delightful applications appear widely in the literature. In [2], the author considers a *k*-circulant matrix whose first row is $(P_1, P_2, ..., P_n)$, where P_n is the n^{th} Pell number, and obtain the formulae for the eigenvalues of such matrix. In [3]–, the authors introduce a new type of matrix called circulant-like matrix whose entries are written as functions of Horadam, Fibonacci, Jacobsthal and Pell numbers. Furthermore, they investigate some algebraic properties. It is known that the *n*th harmonic number H_n, ref. [4] has the usual definition for $n \in$ N, where N denotes the set of natural numbers without zero. The harmonic numbers and their generalizations have been studied for many years and cover a wide range of fields, such as computer science, number theory, physics, and matrix theory. In [5], the authors define *n* by *n* matrices associated with harmonic numbers, they obtainsome properties for their norms. In [6], some spectral bounds for the harmonic matrix are obtained. Furthermore, the circulant and *r* circulant matrices whose entries are harmonic and hyperharmonic Fibonacci numbers are studied [7].

Improving Career Decision-Making for Students Through a Web-Based Expert System

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Abstract:

Globally, the right and appropriate selection of tertiary programmes by potential students in education corroborates every nation's development progress. In order to explore the effect of career counseling and development in students from high schools in odisha with a focus on some selected senior high school (SHS) students, this paper utilized a quantitative (questionnaire) research instrument to corroborate the development a web-based expert system for tertiary programme selection. An analytical summary of questionnaire responses received from the selected SHS students showed that due to limited career assessment processes, SHS students in odisha, select tertiary programmes without realizing how such selections can affect their future careers. In terms of user acceptance testing (UAT), 70% of the selected SHS students (100) found our proposed system to be very useful. Such a system will therefore solve and improve career guidance, counselling, and development problems of SHS students in Odisha.

Introduction

This paper studies the effect of career counseling and development in students from high schools in odisha with a focus on some selected senior high school (SHS) students.It utilizes a quantitative (questionnaire) research instrument to corroborate the development a web-based expert system for tertiary programme selection. An analytical summary of questionnaire responses received from the selected SHS students showed that due to limited career assessment processes, SHS students in Bhubaneswar,Balasore,Angul,Talcher,Koraput etc in odisha, select tertiary programmes without realizing how such selections can affect their future careers. In terms of user acceptance testing (UAT), 70% of the selected SHS students (100) found our proposed system to be very useful.This studies enhances the career decision making thus gives a better future for our students.

ICMRI/2018/10

The Revolution in Human resource management practices

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Abstract

The objective of this review is to explore the theoretical and empirical findings of research work, which link human resource management (HRM) practices with organizational innovation. Innovation models demand innovation oriented and focused bundles of HRM practices to develop and sustain innovation potential and capacity of organizations. Findings of this review reveal that the theoretical and empirical status of HRM practices on development and retention of innovation potential and capacity of organizations, and further enhances the existing body of knowledge and the literature on the relationship between HRM practices and organizational innovation. In addition, this review demonstrates three key roles of HRM practices on organizational innovation.

Introduction

The efficient and effective deployment of HR requires bundles of HRM practices.HRM practices are the actual HR programs, processes and techniques that actually get implemented in the organization or business unit (Gerhart et al., 2000).Organizations where innovation resides exclusively among R & D engineers are often boring, bureaucratic places to work and rarely sustain growth and profit. Like oxygen in atmosphere, the innovation as a process must pervade every single part of the organization‟s value chain.This review concludes that innovative HRM practices (HRM innovation) are important to foster organizational innovation. Integrating organizational innovation processes with HRM functions and respective practices have significant and positive effects (directly and indirectly) on innovation performance of the organizations. In this process, HRM practices have to play three major roles. In this context, HRM practices should provide: firstly, required inputs for the organizational innovations (input role); secondly, required mechanism to bring innovations in the organizations (materializing role); and thirdly, required mechanism to retain the innovation potential of the organizations (retaining role). This review strongly suggests that future studies in this line are needed further to explore these identified roles (input role, materializing role and retaining role) of HRM practices on organizational creativity and innovation.

An Analysis of Paytm's Mobile Wallet Services' Customer Satisfaction

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Abstract:
A smart phone is become a necessary tool for people in today's environment. These days, mobile users can utilize the programs that are installed on their smart phones to conduct financial transactions or make payments. These services are offered by a number of mobile wallets. Digital renditions of conventional wallets that one would keep in one's pocket are called mobile wallets. They provide payment services so that people and businesses can send and receive money via mobile devices. This report aims to shed light on the degree of consumer satisfaction with Paytm's eWallet services. It focuses on the features offered by Paytm Wallet and how satisfied users are with them.
Keywords- Customer Satisfaction, Paytm, Ewallet, Paytm Services, Customer Satisfaction of Ewallets.

Introduction:
A digital wallet is an electronic device that enables a person to conduct electronic commerce transactions. This can involve utilizing a computer to make purchases at a store or a smart phone to make purchases online. Another feature of a digital wallet is its ability to safely store user passwords and credit card details for a variety of websites and payment options. When combined with mobile payment systems, digital wallets enable users to make purchases using their smart phones as payment methods. Digital coupons and loyalty card information can also be stored in them. Another name for it is an e-wallet.
In India, where the majority of people lack debit and credit cards, mobile phones are quickly emerging as a tool that help to accelerate the adoption of digital payment solutions. Digital and wallet payments will be the next big thing after e-commerce. Among them is Paytm. All people are consumers of various goods; without customers, businesses cannot exist. Customer satisfaction is therefore crucial to all company operations. Businesses that aim to go above and beyond the requirements of their clients are probably going to be industry leaders. It is acknowledged that clients play a crucial role in influencing service innovation and evaluating the caliber of services provided. An attempt is made to investigate client satisfaction with the various paytm services in this study.

Internet Literacy In India

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Abstract:
Internet literacy plays key role in the present pandemic situation. Worldwide information available on internet for all academicians. Many publishers publish all types of reading material in electronic media which is available in to various data bases on internet. This is the easy way for find out the information. The present paper discusses the internet literacy of Bachelor of Arts students of the Shri Siddhivinayak Mahila Mahavidyalaya Pune

Internet :
Internet being a tool of Information technology is useful for the users to get information. Internet is an information storage and retrieval tool which provides useful information whenever and wherever we want. Internet helps in getting the knowledge at your fingertips twenty-four hours. Use of Internet began in 1970 in USA but in India it was in 1996. In the use of Internet change the role of libraries and librarians.

Internet is truly a global tool for new millennium. It is essential tools for academicians, information professionals and the students. Internet is network of networks scattered all over the world. It supports learning and teaching and educational organization. The internet enables the individual user to reach other people and institute all over the world and exchange or obtain information search of information or to communicate via wifi

Application of Internet to Library services which are as follows:

a) Participants have the opportunity to exchange current information, databases and conduct dialogue.
b) Subject databases, particularly from academic institutions. Increasing number of institutions, especially academic and research institutions are making databases in their subject specialties available.
c) Public library providing dial up or via internet, to local database, such as tourist information, weather report, medical information, various public reports etc.
d) Government Resources: National and local governments are providing information to various ministry departments.
e) Library catalogue available on the internet
f) Commercial resources: Commercial information available on internet.
g) Document delivery with the help of internet etc.

A Study On Mechanism Of Damage In Problematic Soil

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Abstract
The soil beneath any construction built on earth provides support for it. The foundation serves as an interface between the superstructure and the underlying soil, transmitting both the self-weight and the loads supported by the foundation. Evaluation of the immediate and long-term safe bearing capacity is necessary for foundation design. The weak and compressible soils are prone to bearing capacity and settling issues. To apply a given design without endangering nearby structures, certain degrees of caution must be exercised. Determining potential issues during construction and developing appropriate construction procedures and timely corrective actions are equally crucial. Many of the construction-related issues are site-specific, and the issues may differ from site to site.Because expansive soils tend to inflate and shrink in response to seasonal variations in moisture, many structures built on them are adversely affected. To protect current and future projects, it is necessary to identify and comprehend these soils. The goal of this study is to shed light on a few common issues related to the building of foundations and to enhance methods for the safe design of foundations in problematic soil types, including soft and expansive soils. The foundation for identification as well as the general traits of expansive soils has been thoroughly covered. Expansive soils' potential for damage to various civil engineering constructions has been described with appropriate examples, and the reasons behind the phenomena of volume change in expansive soils have been explored. Thus, it can be said that it is possible to build a safe, stable, and cost-effective structure by employing the right improvement approaches and good component design.
Key words: Expansive Soil, Soft Soil, Foundations.

Introduction
One of the most common elements in civil engineering is soil, which is utilized to build several engineering structures like pavements, embankments, and dams. Regardless of the material used to build them, all structures aside from those based on solid rock end up resting on dirt. Therefore, a project's success, affordability, and safety are greatly impacted by the behavior of the soil at the project site and the interactions between earth materials both during and after the building .One of the most common elements in civil engineering is soil, which is utilized to build several engineering structures like pavements, embankments, and dams Therefore, a project's success, affordability, and safety are greatly impacted by the behavior of the soil at the project site and the interactions between earth materials both during and after the building .The two most crucial considerations in foundation design are economy and safety. Evaluation of the immediate and long-term safe bearing capacity and settling is necessary for foundation design. Even a thorough subsurface investigation may not fully capture the intrinsic changes in soil that are accumulated at a location over extended periods of time by natural geological processes. Therefore, a project's success, affordability, and safety are greatly impacted by the behavior of the soil at the project site and the interactions between earth materials both during and after the building .Expansive soils can cause little maintenance issues and aesthetic problems, but more often than not, they cause significant structural problems. In order to calculate the precise foundation design, therefore, simplifying assumptions regarding boundary conditions and average soil qualities are applied to the various layers. To apply a given design without endangering nearby structures, certain degrees of caution must be used.

Fostering Buyer-Supplier Collaboration in Supply Chain Management: Scale Development

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Abstract:

In today's competitive market landscape, Original Equipment Manufacturers (OEMs) often rely on an extensive supplier base to source components and processes, highlighting the critical importance of supplier development and relationship improvement. This article presents a framework for enhancing buyer-supplier relationships through the development of suppliers, alongside the validation of a scale to measure key constructs in this context. The study conducted a survey among manufacturing companies, including Auto Ancillaries, Engine Manufacturers, Generator Manufacturers, and Machine Tool Manufacturers, with 512 respondents contributing data after incomplete responses were excluded. Through Reliability Analysis, Exploratory Factor Analysis (EFA), and Confirmatory Factor Analysis (CFA) using SPSS and AMOS software, the study validates the scale's reliability and validity. The results demonstrate strong evidence supporting the effectiveness of the multi-item scale in measuring buyer-supplier relationship improvement through supplier development practices and buyer-supplier relationship practices.

Introduction:

In today's globalized and increasingly complex manufacturing environment, Original Equipment Manufacturers (OEMs) face the challenge of efficiently managing their supplier base to ensure the timely delivery of quality components and processes. Outsourcing certain components to suppliers is essential for OEMs to remain competitive, yet the effectiveness of this arrangement hinges on the strength of the buyer-supplier relationship. Recognizing this, efforts to improve buyer-supplier relationships through supplier development practices have become a focal point for many manufacturing companies.

It aims to explore strategies for enhancing buyer-supplier relationships by focusing on the development of suppliers. By investigating the impact of supplier development practices and buyer-supplier relationship practices, the study seeks to validate a scale that can effectively measure these constructs. The research involves a survey conducted among manufacturing companies, including Auto Ancillaries, Engine Manufacturers, Generator Manufacturers, and Machine Tool Manufacturers, with a total of 512 respondents providing usable data. Through rigorous statistical analysis using Reliability Analysis, Exploratory Factor Analysis (EFA), and Confirmatory Factor Analysis (CFA) with SPSS and AMOS software, the study aims to validate the reliability and validity of the scale. By establishing the robustness of the scale, this research contributes to the ongoing discourse on buyer-supplier relationship management and provides valuable insights for manufacturing companies seeking to enhance their supplier development practices and strengthen their buyer-supplier relationships.

An Investigation Into The Effects Of Fly Ash And GGBS On Red Mud-Based Geopolymer Concrete During Ambient Temperature Curing

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Abstract

This study discusses the need to employ geopolymerization to boost the utilisation of industrial waste such as fly ash, red mud, and GGBS and decrease the consumption of OPC. This paper discusses a method for overcoming the limitations of using red mud as a source material for geopolymer concrete. Concrete's desired qualities, as well as the proportions to mix and how to cast it, are explained. It is recommended to utilise Red Mud based Geopolymer for sustainable building, taking into account the cost and test results.

Keywords- Geopolymer Concrete, Red Mud Geopolymer, Geopolymer Concrete With Ambient Curing, Sustainable Construction Material

Introduction

It is commonly recognised that the manufacture of Ordinary Portland Cement (OPC) has environmental consequences. Rapid industrialization has resulted in the production of massive amounts of garbage, which in addition to taking up significant amounts of priceless arable land, is causing ecological and environmental issues. It became necessary to incorporate industrial waste in concrete, the most widely used man-made material worldwide, in order to solve these issues. By using Bailey's technique to extract aluminium from bauxite ore, red mud is a by-product. As a by-product of processing three tonnes of bauxite ore, 1.5 to 2.2 tonnes of red mud are produced for every one tonne of aluminium. It spans a larger area for the disposal of red mud, which percolates and contaminates ground water. A solid, fine-grained substance called fly ash is produced when pulverised coal is burned in power plant furnaces. Fly Ash is only used to a small extent overall—roughly 50%—despite efforts made by the government, a number of voluntary organisations, and research and development centres. Blast furnace slag that is readily available in steel factories is ground and granulated to create GGBS. In order to improve workability, ultimate strength and durability, and resistance to sulphate attack, chloride penetration, and alkali-silica reaction, GGBS is commonly used in Portland cement concrete. An inorganic alumina-silicate polymer with the potential to play a significant role in ecologically friendly building is called Geopolymer. It is made from geologically derived minerals or by-products that contain both alumina and silica. Alkali activators dissolve silica and alumina from materials to produce Geopolymer, which is a significant function of the basic material and creating structures made of alumina-silicates. Red mud, silica fume, fly ashes, and GGBS are a few waste products that contain silica and alumina sources and can be utilised as a source material to make Geopolymer.

Analysis of Impact of Overloaded Heavy vehicles on Bituminous Pavement in India using M-EPDG

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Abstract

In India, bituminous pavements are built, but they collapse earlier than intended. Such a failure could have a number of causes, some of which include the improper choice of materials, the absence of trustworthy traffic and axle load data, and the scarcity of distress-related data for analysis. In this work, the distresses of a real-life pavement were assessed utilizing robust material parameters and extensive traffic and axle load data. For the analysis, a point on NH 13 with the highest overloading was selected. The trial section's stress-strain analysis was carried out under the IRC:37-2012 performance conditions. The design was based on the local climate and real-time traffic data for this site.Using such information and suitable material characteristics obtained at the IIT Madras pavement engineering laboratory, AASHTOW are software was used to verify the design. Additionally, parts recommended by IRC:37-2012 had optimized thicknesses.

*Keywords:*BituminousPavements;VehicleDamageFactor;Overloading;Dynamicmodulus;Subgrademodulus

Introduction

The characteristics of the materials used in the various layers, traffic on the pavement, and the local climatic conditions all affect how a bituminous pavement responds to stress and strain. In the design of bituminous pavements, the stress-strain response is typically linked with the distress transfer functions. Any design process, but particularly the design of bituminous pavements, necessitates making a number of approximations about how design inputs are used and how solutions are found. The robustness of these approximations in the final design process can be found by a thorough sensitivity analysis of the entire design process. In this paper, the IRC pavement design approach (IRC:37-2012) is emphasized. Another area that is heavily approximated is the material qualities employed in various layers. It is commonly known that a variety of factors, many of which are connected to the environmental circumstances, affect the material qualities. For example, the bituminous mixture's "modulus" characteristic is dependent on the speed (rate of load application) of the vehicles and the field's average pavement temperature. While the modulus change with temperature has been discussed in (IRC:37-2012), the modulus variation with frequency has not been mentioned. The modulus of the granular layers, particularly the subgrade, is also dependent on the soil moisture content, which eventually changes in response to local rainfall. It has been noted that axle overloading significantly increases pavement deterioration. It was found that the damage resulting from a vehicle that was 100% overloaded was equal to 18 passes of a regular axle. Sixty percent of pavement damage is caused by heavy vehicles, which make up just fifteen to twenty percent of total traffic (CSIR, 1997). It was also demonstrated that a pavement with a 15-year design life may only have a 12.3-year design life when it is subjected to 5% overloading. Similarly, the design life of the same pavement was lowered to 10.27 and 7.25 years, respectively, if it was subjected to 10% and 20% overloading (Pais et al., 2013). It was found that the axle type (Salama et al., 2006) and vehicle class (Weissmann et al., 2013) affected the extent of damage. Numerous studies recalculated the damage after eliminating overloaded cars from the traffic spectrum in order to assess the effects of overloading (Pais et al., 2013). Research has also demonstrated that when the lawful axle restrictions are properly adhered to, the pavement's service life is significantly extended (Sharma et al., 1995). Sophisticated software tools are necessary to do a complete stress-strain analysis that include the majority of the elements listed above. One piece of software that supports thorough pavement design is AASHTOWare, which was created using the M-E PDG architecture (AASHTO 2012). Top-down cracking, bottom-up cracking, complete rutting, and rutting in bituminous layers are the distresses that are taken into consideration here. In addition, the material qualities are assessed for

An Autonomous Sensor System for Bio-environment Monitoring Purpose

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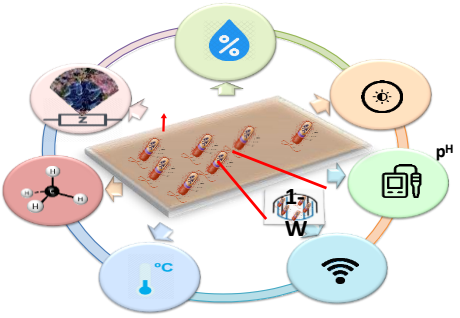
Keywords: Integrated circuit, test vector, detection technology, side channel analysis.

Abstract

This paper presents the EcoChip 2, an autonomous multimodal bio-environmental sensor platform for the monitoring of microorganisms in the northern habitat. The EcoChip 2 prototype includes an array of 96-wells for the continuous monitoring of microbiological growth through a multichannel electrochemical impedance analyzer circuit. In addition, the platform includes luminosity, humidity, temperature sensors and monitoring. The developed electronic board uses an ultra-low-power microcontroller unit, a custom power management unit, a low-power wireless ISM-2.45 GHz transceiver, and a flash memory to accumulate and store the sensor data over extended monitoring periods. When a wireless base station is placed within the transmission range of the EcoChip 2, an embedded low-power wireless transceiver transmits the 96-wells impedance data and the other sensor data stored in the flash memory to the user interface.

Introduction

A strong interest is observed within the scientific community to study climate change and global warming as well as to assess the current environmental conditions and its limits. Microbial ecology, for example, investigates the existing relationships between microorganisms and their environment [1].It is established that the presence of selected micro organisms in a specific environment can predict different environmental factors in a given habitat. These sent in microbes are called bio indicators. Understanding the microorganisms thriving in these northern regions [2] can greatly advance our knowledge of these habitats and the effects of climate changes. But, as of now, the bio indicator microorganisms that flourish in different habitats that are most affected by climate changes, like those in the septentrional regions of Canada, are still mostly unknown.



Operating Point Sensitivity Analysis and Dynamic Stiffness Assessment for Grid-side Converter Control of DFIG WindTurbines

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Keywords: DFIG, DC-link Voltage, Operating Point Sensitivity Analysis, Grid-side Converter, Dynamic Stiffness.

Abstract

The control for the grid-side converter (GSC) of the doubly- fed induction generator (DFIG) wind turbine system is established. The full transfer function of the GSC control is derived. The simplifications of the full transfer function to transfer function (by ignoring inner loop) and then to simplified transfer function (by neglecting the appropriate term of the transfer function) are undertaken and validated by MATLAB results. In order to calculate the tuning parameters, the simplified second order approximated transfer function is also extracted. The dynamic stiffness equations are obtainedto validate that the DFIG system proposed in this paper is stiff enough against the disturbance variations. Finally, the operating point sensitivity analysis and the dynamic stiffness assessment for the GSC are carried out and substantiated by PSCAD results.

Introduction

Hardware Trojans have weakened the security of integrated circuits (IC), and potentially unsecured chips may be implanted with hardware Trojans. With the rapid development of IC, chips have been widely applied in the fields of finance, mobile communications, transportation, energy, and military. Hence, IC security and reliability have attracted widespread attention. Given the improvements in the design and manufacturing level of IC, attacks on security chips (i.e., leaking confidential information and invalidating chips) have been simplified through these advanced designs and manufacturing technology. The increased popularity of third-party technical services has also rendered IC vulnerable to the implantation of hardware Trojans by attackers during the “uncontrolled” design and production process. This vulnerability severely threatens the security of IC chips, especially encryption chips [1-3]. This threat of hardware Trojans to the security of IC supply is alarming; thus, the authentication of chip security is extremely important. Various academic circles have proposed detection methods for hardware Trojans. However, traditional detection methods based on reverse chip engineering and on functional verification are limited. Therefore, the technique of side-channel information detection is increasingly popular. Nonetheless, these methods do not utilize mature industry detection technology. In this study, therefore, we briefly introduce hardware Trojans and the detection methods developed for them. We then establish the power noise model of the S-box circuit, which is the key encryption module of the advanced encryption standard (AES) circuit. We also analyze the influence of test vectors on the

PROGRESSIVE K-CLIQUE MINING IN CO-AUTHORSHIP NETWORK BASED ON TEMPORAL CONCEPT ANALYSIS

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Abstract
Social Network is omnipresent in today's world .Co-authorship network is a subset of Social Network. Interactions in Co-authorship network are based on common interests or similar profiles. Theformation of groups is unavoidable in this setting. The identification of these groups in this setting mayhelp in harnessing the social dynamics that exist in the institution. This will in turn assist inunderstanding the informal research groups evolution in an institution. It should also taken to consideration that Co-authorship networks usually evolve over time. It is a complex task to efficiently identify k-cliques from dynamic social networks. To address this challenge, this paper proposes an efficient k-clique detection method based on Temporal Concept Analysis (TCA). Experimental results illustrate that the proposed detection method is efficient for extracting the k-cliques from the Coauthorshipnetworks.

***Keywords*:** Social Network; Temporal Concept Analysis; k-cliques

Introduction

Co-authorship Network is a special kind of Social Network. They model the collaboration of authors in researchpublications. This network essentially encode latent details about the collaboration behavior of authors in anorganization. Understanding this implicit behavior of authors can assist in the understanding of the informalsubgroups that transcend departments, subject area etc. Co-authorship Networks like Social networks containcollections of sub-networks . If the largest component contains a majority of nodes in a network, it is known as amaximal sub graph. Analysis of Co-authorship Networks leads to the identification of subgroups of authorswho are more closely linked to one another in "communities" or "cliques" . The k-clique detection problem is abasic problem in computer science that can help understand the behavior patterns of authors in Co-authorshipnetworks [Hao et al.(2017), Hao et al.(2016)].A Co-authorship network, where the graph's vertices represent the authors, and the graph's edges represent theauthorship of papers. Then a clique represents a subset of people who have published together, and algorithmsfor finding cliques can be used to discover these groups of authors. Clique detection is one of the most common problems in social network. At present, there is no efficient way to find k-clique in a dynamic social network.To address this problem, we find an efficient method to detect k-cliques which can be used to understand thebehavior among authors and to identify an exclusive circle of people with a common research interest.Inspired by the properties of Temporal Concept Analysis and dynamical features of social network, this paperaims at discovering k-clique in dynamic social network efficiently by extending the Formal Concept Analysis(FCA) by adding time dimension to it. The detected k-clique helps in discovering some useful structures tounderstand the users behaviors in dynamic social network. This paper analyses the extracted k-cliquesprogressively using the CliqueAnalyser algorithm.

Design of Antenna Configuration for Interference Control in MmWave V2V Systems

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Abstract:

Millimeter wave (mmWave) has great potential to be used for Vehicle-to-Vehicle (V2V) communications due to the characteristics of ultra-high throughput and ultra-low latency. Besides, one mmWave channel can be reused in all V2V links since it is easily blocked by surrounding obstacles, which highly improves the spectrum efficiency. However, links with reflected interference still exist that degrade the throughput of mmWave V2V communications, even though the direct interference link can not penetrate vehicle bodies.

Introduction:

To mitigate this negative effect, in this paper, we firstly analyze the channel model of mmWave V2V under interference from ground and surrounding reflections. In order to maintain a higher practical throughput than the required data rate (1 Gbps), a new method of ZigZag antenna configuration is proposed. Secondly, via simulation, the antenna height is optimized under ZigZag antenna configuration. At the optimal antenna height, throughputs of mmWave V2V communications with/without ZigZag antenna configuration are fully compared with non-equal inter-vehicle distance at 60 GHz, where the ZigZag antenna configuration significantly suppresses the destructive interference. Finally, the effectiveness of ZigZag antenna configuration is proved by outdoor experiments.

DESIGN OF CONFORMAL ANTENNA FOR AIRCRAFT APPLICATIONS

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Abstract:

The most challenging thing in the real world is communicating with aircraft, even though several communication technologies have been adopted for tracking and monitoring the aircraft there is no cent per cent efficiency, for the implementation of a conformal antenna for transmission and reception of the signal is preferred. In radio communication and avionics, a conformal antenna or conformal array is a flat radio antenna which is designed to conform to or follow some prescribed shape, for example, a curved conformal antenna is designed and is mounted on or embedded in a curved surface. The conformal antenna is a collection of a large number of smaller antennas (PAA) each one is connected to a phase shifter. The phased array antenna will have high directivity in the desired application. Conformal arrays are typically limited to high frequencies in the UHF or microwave range, where the wavelength of the waves is small enough that small antennas can be used. The main objective of this project is to embed this conformal antenna on the surface of the aircraft with increased gain. To implement the above-mentioned problem we are using CST microwave software. Conventional methods now used in aircraft are done by using the conformal antenna to save space and even military applications to be anonymous. The antenna stands to be an interface between the transmitter and the receiver. By working on the software and hardware features of antennas we can develop an antenna with better gain. By adopting better gain, the antenna will be more efficient. Thus by implementing this conformal antenna on the aircraft surface with an increased gain high degree of accuracy, clarity and effective communication link can be achieved.

Introduction :

Antennas are key components of any wireless communication system. They are the devices that allow for the transfer of a signal to waves that propagates through space and can be received by another antenna. The receiving antennas responsible for the reciprocal process which is turning an electromagnetic wave into a signal or voltage at its terminals that can subsequently be processed by the receiver. The receiving and transmitting functionalities of the antenna structure itself are fully characterized by An antenna system is defined as the combinationof the antenna and its feed line. As an antenna is usually connected to a transmission line, how to best make this connection is a subject of interest, since the signal from the feedline should be radiated into space in an efficient and desired way. In some applications where space is very limited such as hand portables and aircraft, it is desirable to integrate the antenna and its feedline. In other applications such as the reception of TV broadcasting, the antenna is far away from the receiver and a long transmission line has to be used.

A SENTIMENT ANALYSIS SURVEY

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Abstract:
The growth of web 2.0 provides a great medium for people to share opinions, comments andemotions. Web Opinion Mining or Sentiment analysis is one of the tasks in text mining that aims todevelop system to automatically extract, identify and classify user's opinion from text written in naturallanguage, user generated content or user generated media. Organizations are interested to get feedbackon their products and customer service for business intelligence. Individuals are also interested in other'sopinion for decision making. This survey presents the details of recent works available in the literaturefor the field of Sentiment Analysis. The existing techniques are grouped into categories based on themethods. The aim of this survey is to provide a summary of current research activities on this area andimplementation of various useful techniques applied on sentiment analysis**.**

Keywords: Machine Learning,Natural Language processing,NavieBayes,Opinion Mining, Sentiment Analysis,SVM

Introduction:
Today reviews or comments play an impact on customer procuring through e-commerce websites. This sharing provides attitude, emotion, or reaction about customer. The comments may be about goods, or services or any related things. To make decision on the availability of opinion rich and huge volume of information (Example comments in Amazon, Flipkart, Twitter, Facebook etc.,). we need an intelligent system for learning opinions. This analysis is known as Sentiment Analysis or Opinion Mining. It will help the individuals, Organizations, and Government to know what the attitude of public about their particular product or service is [12] [48]. Opinion mining is a task which combines Natural Language Processing (NLP) and machine learning techniques to analyze text as positive, negative or neutral. For example," I had an Intel XOLO Q1100 for about 2 years. It works brilliantly, durable and reliable. Its display is beautiful and the phone is fast and perfect size to fit into my pocket", is a positive opinion. Opinions may be Direct and Indirect. The expression of sentiment on some objects is referred as Direct Opinions. For instance," Sony Xperia S is excellent phone with excellent Camera Quality and Gaming", is a positive opinion for Sony mobile phone. Indirect opinions are comparing two or more objects with similarities and differences. For example, "Intel XOLO Q1100 is far better than iPhone. I look at the customization, ease of use, menus, and speed everything". In the above example, the author comparesthe features of mobile phones.Subjectivity Detection is a technique to determine opinion as subjective or objective expression from a pieceof text. For instance, (1) Digital Camera is a good device for taking photographs. (2) The quality of picture onthis camera is good. Both the sentences contain sentiment bearing words good, despite first sentence is anobjective or factual sentence (i.e., does not convey any sentiment) whereas second one depicts opinion about thatcamera, is a subjective sentence. Sentiment Classification is to organize the subjective sentence as positive,negative or neutral from the document, also known as polarity classification. Sentiment Summarization providesThe applications of Opinion Mining are: Brand Sentiment analysis helps to understand the tastes,preferences and customer patterns by

Control Algorithm for microgrid Energy Balance

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Keywords: PV Cell, Microgrid, Grid Interconnections, Grid synchronization, Control unit.

Abstract

Modern power systems would compose of networked microgrids (MGs) operating independently. Respectively, MGs' control units (MCUs) are responsible for optimising the operation of independent agents associated with local resources to maximise the social welfare of the system. In this regard, agents schedule their respective resources with the aim of maximising their profits; while MCU as a mediator entity strives to facilitate the flexibility of service exchange among the agents. In MGs, renewable energy sources (RESs) as potential sources of energy confront with uncertainty originated from their dependence on meteorological resources. Consequently, MGs would confront energy imbalance in real time as a result of probable inaccuracies corresponding with forecasting the power production of RESs in the day-ahead market. To tackle this issue, a transactive-based framework is developed in this study that enables MCUs to incentivise the cooperation of agents scheduling flexible resources in minimising energy imbalances in real time. Correspondingly, MCU offers bonuses as transactive signals to local agents to contribute in minimizing the energy imbalance; which consequently results in improving the MG flexibility. Finally, the developed framework is implemented on an MG composed of independent agents scheduling flexible resources to investigate its effectiveness in minimising the energy imbalance in MGs.

Introduction

Microgrids (MGs) as independent entities have been introduced to enable the decentralized control of distribution systems. Furthermore, the development of distributed generation units that could be integrated into distribution systems and operated by independent agents has facilitated the expansion of MGs in the system. MGs' control units (MCUs) manage the scheduling of local resources operated by their respective agents and so determine the power exchange with the main grid. In this respect, each agent strives to maximise its respective profit; while MCU attempts to efficiently coordinate the operation of agents and maximises the overall profit. Consequently, MGs have facilitated the integration of independently operated local resources in modern power systems.One of the potential primary power generation resources in MGs would be renewable energy sources (RESs) like wind power and photovoltaic (PV) units. The increasing rate of RESs installations in local systems is mainly originated from the rising environmental concerns. However, the stochastic and intermittent nature of RESs could lead to operational issues due to potential inaccuracies associated with their respective power generation prediction procedures [1, 2]. This could eventually result in real-time (RT) energy imbalance in MGs and therefore expose them to RT costs in order to compensate for the dismissed power generation by RESs. Consequently, the profits associated with RESs agents could be significantly decreased. To tackle this issue, a new framework needs to be developed in order to enable the MCUs to exploit the

Bacterial Concrete: A Sustainable Building Material

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Abstract:
Choosing the appropriate building materials is crucial for a building's design to meet the criteria of sustainable development. Concrete is one of the building materials that is most frequently used. The environment is heavily burdened with energy throughout its manufacturing. Concrete is vulnerable to outside influences. As a result, the material starts to crack. To attain durability while adhering to sustainable construction principles, it is imperative to employ an eco-friendly and efficient method of alternative crack elimination in the damaged material. By lowering expenses associated with damage identification and upkeep of concrete structures, bacterial self-healing concrete ensures a safe structure's lifespan. Concrete treated with bacteria can become more durable. On the other hand, industrial use of it is not currently practiced. The substrates are not used on an industrial basis due to their high cost. While many research groups attempt to lower production costs in a variety of ways, bacterial concrete can be a useful solution for sustainability.
Keywords: sustainable; self-healing; concrete; bacteria

Introduction:

Building is expanding quickly, especially in developing nations where it is a major cause of pollution, excessive energy use, and depletion of natural resources. The comfort and health of building occupants are directly impacted by these acts [1, 2]. Investigations investigating the detrimental effects of building materials on users' health were started as early as the 1970s. The research led to the introduction of ecological materials, such as paints, wood, silicate blocks, and products based on gypsum binders. The goal of these items is to improve human health. They should also only have a minor negative There are several stages to their life cycle and burden.The process starts with where to find the raw ingredients needed to make them. Operation is the following phase, where they can either be preserved or refreshed. The recycling and disposal of materials constitute the last phase.As a result, the design and application of green (sustainable) [3 building materials should reduce the sources of pollution. Buildings and constructions should conserve energy and be safe for human health during their entire life cycle [4]. One of the key components of the new energy-efficient building system is the energy content of the building materials [5].impact on the environment. Selecting the appropriate building materials is crucial for attaining sustainable development in the European construction sector [1]. Actions geared toward sustainable development are encouraged by the European Union. Reducing energy and natural resource use is of utmost importance, as is minimizing waste and pollution generated by material transportation.The full life cycle of buildings is being addressed by the introduction of sustainable development principles. This could guarantee a balance between social, environmental, and economic performance [6, 7].Every building design that is put into practice should be practical in terms of improving the building's durability, technical and material performance, and life cycle cost [8].

A SOLUTION BASED ON MODIFIED GENETIC ALGORITHMS FOR TASK SCHEDULLING IN A CLOUD COMPUTING SYSTEM

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Abstract
Cloud computing is a growing technology that provides on demand shared pool of resources over the internet. Sharing of resources amongst the number of cloud users makes task scheduling a challenging issue. Task scheduling issue in many cases resolved by meta-heuristic approaches. This paper proposes a solution for task scheduling in a cloud computing environment based on the meta-heuristic, Genetic Algorithm. The proposed solution i.e. Modified Genetic algorithm (MGA) uses a hybrid solutionbased on Genetic Algorithm along with Predict Earliest Finish Time (PEFT) scheduling on DirectedAcyclic Graph (DAG). Simulated results of the Modified Genetic Algorithm are compared with basic GAand with hybrid GA with HEFT (Heterogeneous Finish Time First) scheduling algorithms. Further,comparative analysis has been performed based on makespan, average processor utilization, processingcost metrics. It is observed that MGA gives optimal results in terms of processing cost and processorutilization for the unbounded number of processors**.**

Keywords: Cloud computing, Task scheduling, DAG, Genetic algorithm, HEFT, PEFT

Introduction

Cloud is used as a metaphor for the internet and computing through internet called cloud computing [2]. Cloud computing environment provides three basic services namely Infrastructure as a Service (IaaS) that provides required operating environment, Platform as a Service (PaaS) that provides required tools and services to the application developer to run user's application, Software as a Service (SaaS) that distributes the services to the end users [13]. Cloud contains large numbers of users from different geographical area who need cloud resources according to their requirements to execute their tasks. For this Virtualization technique is used that creates virtual version of the resources by dividing them into more than one computing environment called
Virtual Machines (VMs). As users are more than the available cloud resources, it emerges need of scheduling. Task scheduling [22] allocates the tasks to the available resources or virtual machines (VMs) in a manner that reduces the total execution time of all the tasks. Further load balancing [2] distributes the load between the available VM in a way that no machine should be idle or overloaded; if it is, then tasks are transferred from overloaded VM to under-loaded VM.This paper integrates the GA with PEFT[1] scheduling algorithm with an objective to manage the total completion time of all the tasks, increase processor utilization, and to reduce processing cost using less number of VMs. This paper formulates as: Section 2 provides the brief survey of existing meta-heuristic GA based task scheduling with their performances. Section 3 describes the methodology of the proposed algorithm. In section 4 performances are evaluated using performance evaluation metrics and at the end, conclusion and future scope are compiled under section 5.

Social Media Information Analysis Using a Business Intelligence Model

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Abstract
These days, social media is a very popular medium for information sharing because of its features that facilitate communication, document sharing, community building, and even communication among users. Additionally, we can use a variety of data mining techniques to evaluate social media content in order to obtain fresh knowledge that will aid in decision-making and help both people and businesses. The aim of this study is to develop a business intelligence dashboard for monitoring the effectiveness of individual news topics or channels on social media platforms like Facebook and Twitter. The number of topics in articles shared on social media that receive likes, shares, comments, and other interactions is known as topical performance. Using text classification techniques like Naive Bayes, SVM, and Decision Tree, it was possible to determine the topic of a news post using social media. For the purpose of being implemented in the data warehouse later on, the methods with the best SVM accuracy are compared. In the interim, the data source for the business intelligence dashboard will come from previously created data warehouses.

Keywords: Social Media, Naive Bayes, SVM, Decision Tree, Business Intelligence

Introduction

Social media usage is commonplace throughout all age groups these days, from kids to adults. Social media is becoming more vibrant than just Facebook and Twitter thanks to the addition of LinkedIn, Instagram, Path, and Pinterest. Because of their function in facilitating user participation, content creation, and sharing across blogs, social networks, wikis, forums, and virtual worlds, social media is becoming increasingly appealing to users in general. Statistics from smartinsights.com, which show that there are 1.59 trillion active Facebook users, 320 million Twitter users, 400 million Instagram users, and so on, support this. These statistics' findings indicate that Facebook is the social media platform with the highest number of active users. The usefulness of the social media platform itself is greatly impacted by the sufficiently big number of active users as previously said. Here, the influence is that social media may now be utilized as a platform for easy customer communication, promotion, and campaigning in addition to its original function as a location for participation, sharing, and content creation. Furthermore, since we know that social media marketing necessitates monitoring in order to prevent deceptive tactics (promotion, campaigns, and consumer communication), we should know exactly which areas need to be watched in order to effectively use social media for marketing purposes, whether the goal is to raise brand awareness or drive traffic to the website. Brand terms, terms that are synonymous with brands, customer demands, consumer emotion, and competitors are strategic areas in social media that require monitoring. Direct social media monitoring is possible, with Facebook being the most widely used medium for marketing activity, followed by Instagram, YouTube, LinkedIn, Twitter, and Facebook. Software and a data warehouse model for a business intelligence system will be created and implemented in this study. Twitter and Facebook account data will be used as the data sources. They will be divided into a number of categories pertaining to politics, soccer, technology, entertainment,

Cloud based flexibility in the Electricity Domain

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Keywords: INVADE, Reference Architecture, Flexibility operator, Grid synchronization.

Abstract
The H2020 project INVADE has addressed optimal activation of the different flexibility services using the cloud based solution in the electricity domain. The results have been tested full-scale at different sites around Europe. Both business aspects and technical issues have been addressed. To provide effective instruments for practice sharing, collaboration and communication, sound reference architectures should be established. This study deliberates on the findings from H2020 INVADE and proposes a way to expand existing frameworks for Smart Grids.

Introduction
A reference architecture (RA) represents the knowledge of how IT components can be applied to a problem domain. It can serve an important role in a software engineering process where generic modules are available. A RA helps developers and other stakeholders to define requirements, develop and evaluate solutions and integrate systems. Architecture descriptions aimed to provide support for application development are typically based on previous practices. Hence RAs represent a form of best practice descriptions. They can describe how a rich and often complex set of software resources can be applied. Suppliers of cloud-based systems and services see RAs as tools that can help users to appreciate the resources offered and accelerate the use of such assets. With the emergence of Internet of Things (IoT) IT systems grow rapidly more complex. In addition to software, a rich and diverse set of hardware needs to be addressed. More data must be handled and processed. Moreover, the infrastructure that developers need to take into account is partly based on existing sub-elements and clouds constituting self-serving platforms that form their own ecosystems. This implies a bottom-up type of development that is likely to become more common in the future. Offers for infrastructure as a service (IaaS), platform as a service (PaaS) and software as a service (SaaS) solutions have become common and many of them contain resources that can be configured and reused for different purposes. With this, we also experience Big Data applications involving statistical processing, machine learning and artificial intelligence (AI). Such applications are highly dependent on scalable computing infrastructure. In the electricity domain, the CENELEC Smart Grid Coordination Group (SG-GC) has published a RA [1]. A comprehensive review of the Smart Grid Architecture Model (SGAM) and its applications can be found in [2].

Modeling the stacking of assemblies for classifying populations in feature-based opinion mining

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Abstract:
We proposed stacking ensemble model to solve the problem of feature-based opinion mining. We used Naive Bayes, Support Vector Machine and K-Nearest Neighbor as base learner and Support Vector Machine as Meta Classifier. Using domain knowledge the dataset consists of Feature-Opinion-Negation triple is created and trained using the proposed stacking ensemble model. The proposed model predicts feature based opinion polarity identification of 4096 laptop product reviews with 92.5315% accuracy.

***Keywords*:** Stacking; Ensemble Learning; Opinion Mining; Sentiment Analysis; Naive Bayes; Support Vector Machine; K-Nearest Neighbor

Introduction

As customer reviews are user generated data, its analysis is very critical task. Opinion mining is the discipline using which these reviews can be analyzed efficiently and effectively. Feature-based opinion mining is one of the tasks of opinion mining. It is also known as Aspect Based Sentiment Analysis. The problem of Feature-based opinion mining can be solved by using different approaches. Machine learning is one the most popular approaches. The machine learning approaches can be classified as supervised and unsupervised. To improve the performance of supervised learning models different classifiers are combined to solve the problem. This is called as ensemble learning. There are three types of ensembles namely bagging, boosting and stacking. In this paper we have proposed the stacking ensemble learning model to solve the problem of feature-based opinion mining. Stacking is also called as stack generalization. In stacking, different base learners are trained on same dataset. The Meta classifier is trained using output of the base learners. Stacking combines heterogeneous classifiers and gives improved performance. Stacking ensemble combines multiple classifiers via meta-classifier. The proposed ensemble has two levels. The base level i.e. level 0 consists of three classifiers, namely Naive Bayes, Support Vector Machine, and K-Nearest Neighbor. At level 1 we used Support Vector Machine as meta- classifier.
The paper contributes System architecture for feature based opinion mining and summarization using stacking ensemble. This paper is organized as follows. Section-2 discusses related work, Section-3 gives the overview of the proposed model, Section-4 discusses the experiments and results and Section-5 concludes the paper with future directions.

EXTENSIVETEXT CODE FORMAT TO IMPROVE COMPREHENSION

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Abstract:
The idea of using rich text for programming looks promising. Some new avenues can open up by a programming environment that allows the programmers to use rich text formatting options (e.g.fonts, colors, highlighting, hyperlinks, embedded images, notes, audio, videos etc.) in their program text.Such an environment can be very useful towards enhancing program comprehension, especially in thecontext of maintaining large long-lived software systems. Computer programs are among the mostcomplex and valuable creations of the human mind. Mankind has already produced billions of lines ofcode worth trillions of dollars. Countless man-hours of intense cognitive work would be required tomaintain them. Any tool that improves maintainability of such assets can be a useful addition.

***Keywords*:**Text editor, Rich text, Annotations

Introduction:
Rich text is more conducive to human perusal due to the availability of additional visual cues. However, theexisting rich-text formats are not suitable for use with programming. This paper presents a new rich text formatthat is amenable for programming in that it can be easily used in diff/merge and version control processes. Atext editor based on this rich text format is also presented. The editor is called '*spectral*'. The central idea of thisformat and editor is a marriage between rich-text and plain text-formats which brings about the best of bothworlds. It begets the maintainability merits of plain text (e.g. simplicity of automatic merging, byte-levelconcatenation, and version management) alongside the visual appeal of rich text (e.g. fonts, color, graphics,etc.). The file format represents rich text in a way that preserves line-to-line correspondence with the plain textcontent. The *rich text* view would incorporate pictures, notes, audio, video etc. to enrich the programming and program comprehension experience, while the corresponding *plain text* source code is preserved all along with asimple and intuitive mapping between the plain and the rich text.

Comparative Analysis Of Steel, Composite, And Reinforced Concrete Structures Under Static And Dynamic Load Conditions

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Abstract

Globally, steel-concrete composite construction is becoming more and more popular as a substitute for construction made entirely of steel and concrete. This strategy is novel for the construction sector, though. Because of their dangerous formwork and high dead load, R.C.C. are no longer cost-effective. The comparison of steel, composite, and reinforced concrete structures under the influence of static and dynamic stresses is the focus of this study. The work's findings indicate that, in comparison to steel and reinforced concrete structures, composite constructions are most appropriate for tall buildings. Three structures are compared using the response spectrum approach and the ETABS program.

Key words: displacement, inter-story drift, bare frame, and base shear.

Introduction

Since there is a shortage of space in big cities, vertical development is the only viable option in today's modern day with a faster-rising economy and an increasing human population. Additionally, the necessity for housing drives up land costs. Steel-concrete composite construction is a quicker technology that reduces building time, enabling planners to satisfy demand in the real estate market as quickly as possible. More carpet space is provided by this technology than by any other kind of building. The life expectancy of the structure is further increased by composite construction. Due to its many benefits, such as being easier to erect, lighter, better at quality control, requiring less time to complete, and having better ductility and hence superior lateral load resisting behavior, composite construction is becoming increasingly popular. The goal of the current research is to examine how steel, composite, and reinforced concrete structures respond to seismic loads. Base shear, displacement, and inter-story drift are the parameters taken into account.

An Overview Of Recent Developments In Computational Predictions Of Interactions Between Proteins

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Abstract:
Since the human genome project is finished, proteomics has gained significant attention as a field of study in life sciences. In order to obtain a holistic and thorough understanding of the process of disease occurrence and cell metabolism at the protein level, scientists will first examine the properties of proteins at the large-scale data level. Managing the massive volumes of protein data generated by high-throughput technology is a major challenge in the field of proteomics. Protein-protein interactions (PPIs) and other significant post-genome era challenges are increasingly being solved with computational technologies that are low-cost and short-cycle. We highlight recent developments in this important field from a variety of angles in this review, which focuses on computational approaches for PPIs detection. We begin by thoroughly examining the various obstacles that contingent techniques of PPI prediction face and compiling a list of the PPI data sources that are currently accessible. Secondly, we outline the cutting-edge computational techniques that have been suggested lately for this subject. In conclusion, we go over a few key technologies that can advance computational proteomics and PPI prediction.

Keywords: proteomics, protein-protein interactions, computational proteomics

Introduction:

The study of computer analysis techniques for genome sequence data has grown to be one of the most focused areas of bioinformatics research since the human genome project (HGP) was formally launched in the 1990s. After the completion of the Human Genome Project was announced in 2003, and as scientists' understanding of the function of proteins in biological systems has grown, conducting thorough proteomics research has progressively assumed greater importance in the post-genome age. The study of protein expression, post-translational modifications, protein-protein interactions, and other topics is known as proteomics. Related study offers theoretical justifications and answers for the clarification and capture of various illness mechanisms in addition to molecular-level insights into the law of life activities.

For instance, aberrant protein interactions can impact cellular activity and function, resulting in a variety of illnesses like cancer and neurodegenerative diseases. The study of computational proteomics focuses on applying computational methods to major biological problems in proteomics, including protein identification, quantitative analysis, disease diagnosis, protein interactions, subcellular localization, functional classification, post-translational modification analysis, and drug design. It has grown to be a significant area within bioinformatics and computational biology. In particular, the recent rapid advancements in computer hardware, information processing, and network technology have created stable conditions for the broad development of computational programming. In the study of modern life sciences, computational proteomics is becoming more and more significant [1,2].Protein is the fundamental building block of life and the primary carrier of its processes. The great majority of biological processes and intracellular biochemical activities include protein-protein interactions, or PPIs [3]. Hence, a thorough identification of PPIs is helpful in understanding the molecular underpinnings of

An International Perspective on the Development, Obstacles, and Policies of Indian States Regarding Renewable Energy

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Abstract:
Nowadays, there is a lot of interest in clean and environmentally friendly energy harvesting since it helps to accelerate social progress and raise living standards while also being a critical enabler for reaching the Sustainable Development Goals (SDGs). With 1.353 billion people, India is the second most populous country in the world and one of the biggest users of fossil fuels, which contributes to global warming. Up to 2050, population expansion is expected to continue, which means that the rapid industrial growth in the future decades will also accelerate the need for energy. The National Institute for Transforming India (NITI) Aayog and the Ministry of New and Renewable Energy (MNRE) are collaborating to help the Indian government reach its goal of 175 GW of renewable energy.

Keywords: Renewable energy potential, global energy scenario, Energy policy in India, renewable energy barriers, prospects of renewables in India, renewable energy in India.

Introduction:

In the present-day scenario, global warming harms the environment and the human race. The power systems energy production sector contributes nearly 75% of total CO2 emissions in the world [1], which contributed to Greenhouse Gas (GHG) emissions as well as global warming. Thus, the United Nations is urging every nation in the world to comply with Sustainable Development Goals (SDGs) [2]. To slow down the effects of climatic changes, they are proposing to adopt renewable sources for meeting energy demands and reduce the per capita consumption [3]. Various countries have complied themselves following SDGs, by framing a structure of adoption of renewables, a road map to achieve its target and individual policies regarding renewable energy (RE) production. In India, National Institution for Transforming India (NITI) Aayog, a non-statutory and advisory body, has taken the responsibility on the development of a comprehensive index to provide an integrated and combined view of the various socio-economic and substantial status of the country. It has also measured the progress of India and its state towards the accomplishment of the SDGs [4]. The energy demand in India is drastically increasing, and by 2030 India's total energy demand will be more than double while electricity demand will almost triple than today [5]. Moreover, current conventional sources are responsible for climates as well as unlimited in capacity. Hence, an alternative form of the generation which is cleaner and unlimited will be indispensable. RE installed capacity accounts for 22.5% [6] of India's total installed capacity for power production as of July 2019 [7]. India, the nation with abundant natural resources, has the immense potential for generating electricity through RE resources. The current day technologies have enabled for utilizing these renewable resources in a more efficient way of generating electricity [8].

The Review and Analysis of Antenna for Sixth Generation (6G) Applications.

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Abstract:
A wireless devices has continuous technology improvement to provide a better and interesting services. The next generation, 6G is expected to support the gigantic amount of data traffic to cope the rise of connection wireless device. As a solution, a large bandwidth is supposed to be focused and a better gain is required. Then, a new frequency region that is at THz band is utilized. Since 6G technology is very new and not be defined yet, the previous work on 6G is reviewed to make a clear decision on antenna design specification. An antenna at 300 GHz for 6G application is also proposed and analysis of gain improvement is presented in this paper. The simulated results of single element 6G antenna have wider bandwidth of 86.66 GHz from 278.56 GHz to 367.33 GHz at -10 dB level, directive radiation pattern at E-plane and H-plane, and higher gain of 5.41 dBi. Index Terms — 6G, 6G antenna, high data rate, wider bandwidth, higher gain.

Introduction:
Today, many new wireless devices are rapidly being developed. Various parties including scientist, researcher, and engineer are always looking for way to improve and transform these wireless devices into greater service and experience. Due to that, sixth generation (6G) is predicted to be commercialized in the early 2028 or massively used around 2030. Even it is not being defined clearly, several white papers have been released by University of Oulu Finland [1], and Samsung Research [2], respectively. Then many industries and research institutes has declared to work and conduct research in 6G [3]. Generally, in [4] reported that 6G is an intelligent information system that is driven with modern artificial intelligence (AI) technologies. In other word, it is revolutionizing the wireless evolution from “connected things” to “connected intelligence”. Based on the white papers aforementioned, this next generation technology provides enhanced mobile broadband (eMBB), ultra-reliable and low latency communications (URLLC), and massive machine-type communications (mMTC). Besides, extended reality (XR), hologram, digital replica, three-dimensional (3D) mapping, positioning, and sensing are also observed. However, there are challenges in order to serve these systems. Related to the main component for a wireless device that is antenna, a very high data rate needs to be achieved to support the data traffic of these operations and connected things which may increase to hundreds of devices per cubic meter. A user should have possibility to transmit data up to 1 Tbps. In another case, 0.58 Tbps is required to produce a hologram over a mobile device which is containing one micro meter pixel size on a 6.7 inch display, or said that 11.1 Gigapixel. The high data rate can be acquired from a wider bandwidth. While for obtaining bandwidth above 100 GHz, it can be realized at terahertz (THz) frequency

An Examination of Several Iterative Techniques for Resolving Fuzzy Volterra-Fredholm Integral Equations

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Abstract:

The main focus of this study is on the recent developments in the approximated approaches of variational iteration, homotopy analysis, and Adomian decomposition for solving fuzzy Volterra-Fredholm integral equations. In the crisp scenario, we transformed the fuzzy Volterra-Fredholm integral equation into a system of Volterra-Fredholm integral equations. In order to obtain an approximation for the fuzzy solution of the fuzzy Volterra-Fredholm integral equation, approximate methods are used to discover the approximate solutions of this system. Algorithms with Mathematica 6 according are used to evaluate each method's accuracy. To further show the reliability and suitability of the suggested approaches, a numerical example is also provided.

Keywords: Adomian decomposition, variational iteration, homotopy analysis, fuzzy Volterra-Fredholm, integral equation

Introduction:

Fuzzy integral equations have gained a lot of attention lately, especially in the context of fuzzy control. Dubois and Prade [2] and Zadeh [1] were the first to introduce the idea of fuzzy integers and arithmetic operations. They have also introduced the idea of fuzzy function integration. Cheng and Zadeh [1] presented the fuzzy mapping function. Additionally, [3] introduced a basic fuzzy calculus based on the principle of extension. A Riemann integral type approach was later used by Goetschel and Voxman [4]. Kaleva [5] decided to formulate the fuzzy function integral using an integration idea akin to Lebesgue's. Ma and Wu, who studied the fuzzy Fredholm integral equation of the second kind, provided one of the earliest applications of the fuzzy integral equation. Fuzzy integral and integro-differential equations have recently been the subject of numerical studies by certain mathematicians [6, 7, 8, 9, 10, 11, 12, 13, 14, 15]. The fuzzy integral and differential equations are well-known to be crucial components of the fuzzy analysis theory and are essential to numerical analysis.

This article proposes current developments in approximation techniques for solving second-kind fuzzy Volterra-Fredholm integral equations: the Adomian decomposition approach, variational iteration method, and homotopy analysis method.

Underwater Wireless Communications: A review

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Abstract:

While wireless communication technology today has become part of our daily life, the idea of wireless undersea communications may still seem far-fetched. However, research has been active for over a decade on designing the methods for wireless information transmission underwater. Human knowledge and understanding of the world's oceans, which constitute the major part of our planet, rests on our ability to collect information from remote undersea locations. The major discoveries of the past decades, such as the remains of Titanic, or the hydro-thermal vents at bottom of deep ocean, were made using cabled submersibles. Although such systems remain indispensable if high-speed communication link is to exists between the remote end and the surface, it is natural to wonder what one could accomplish without the burden (and cost) of heavy cables.

Introduction:

Hence the motivation, and our interest in wireless underwater communications. Together with sensor technology and vehicular technology, wireless communications will enable new applications ranging from environmental monitoring to gathering of oceanographic data, marine archaeology, and search and rescue missions. The signals that are used to carry digital information through an underwater channel are not radio signals, as electromagnetic waves propagate only over extremely short distances. Instead, acoustic waves are used, which can propagate over long distances. However, an underwater acoustic channel presents a communication system designer with many difficulties. The three distinguishing characteristics of this channel are frequency-dependent propagation loss, severe multipath, and low speed of sound propagation. None of these characteristics are nearly as pronounced in land-based radio channels, the fact that makes underwater wireless communication extremely difficult, and necessitates dedicated system design.

6G Wireless Communication Systems: Localization and Sensing

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Abstract:

The demand for multimedia data services has grown up rapidly over the years. Fifth generation (5G) wireless communication which has been deployed in a lot of countries will not be able to meet up with users demand based on the estimated mobile traffic volume of users in the next few years. Therefore, the sixth generation (6G) communication has been proposed to address the constraints/limitations of 5G communication. 6G systems will operate in the millimeter wave (mmWave) and terahertz region which has larger bandwidth and offers higher data rate than 5G systems. 6G has a lot of opportunities like high-definition imaging, frequency spectroscopy, accurate localization and sensing, which is the main focus of this work.

Introduction:

There are a lot of opportunities for sensing at higher frequencies because of fine resolution in all physical dimensions (range, Doppler and angle). Moreover, localization and sensing in 6G is made possible by the key enablers technologies which are: the use of new radio band for communication, intelligent beam-space incorporation of intelligent surfaces, artificial intelligence and machine learning methods. In the new proposed 6G system, it is necessary for localization, sensing and communication to coexist, sharing the same time-frequency-spatial resources. In other to enable sharing, cooperation, coexistence and co-design, various mechanisms and approaches are needed in 6G communication systems.

Autofocus method for automated microscopy using embedded GPUs.

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Abstract:
In this paper we present a method for autofocusing images of sputum smears taken from a microscope which combines the finding of the optimal focus distance with an algorithm for extending the depth of field (EDoF). Our multifocus fusion method produces an unique image where all the relevant objects of the analyzed scene are well focused, independently to their distance to the sensor. This process is computationally expensive which makes unfeasible its automation using traditional embedded processors. For this purpose a low-cost optimized implementation is proposed using limited resources embedded GPU integrated on cutting-edge NVIDIA system on chip. The extensive tests performed on different sputum smear image sets show the real-time capabilities of our implementation maintaining the quality

Introduction

In the last decade, several image processing applications have been developed for analyzing and processing acquired images with optical instrumentation such as microscopes. The main goal of these kind of applications is to obtain a high quality image for helping experts in the diagnosis using automatic procedures. The overall quality of the process is directly related to the design of automatic focusing algorithms [1]. However, very often the sample contains objects of different sizes and thickness, making necessary to move the focus closer or further to get all the relevant information in the scene. A clear example is the identification of the Tuberculosis Bacilli (TB). The manual identification of TB is routinely performed in sputum smears dyed with fluoroscope Auramine O, using a fluorescence microscope, being a non-invasive method which allows to repeat the examinations. Manual screening for the identification of bacilli involves an intensive and tedious task with a high false negative rate [2]. Automatic screening will entail several advantages, e. g., a substantial reduction in the labor workload of the clinicians and a better accuracy in diagnosis by increasing the number of images that can be analyzed by the computer. Autofocus methods can be broadly classified as active and passive. Active methods are based on the emission of certain kind of waves (ultrasound or electromagnetic) for measuring the distance between the object and the lens [3].

An International Perspective on the Development, Obstacles, and Policies of Indian States Regarding Renewable Energy

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Abstract:
Sub-Saharan Africa (SSA) household customers' adoption of hybrid renewable energy systems is drawing more and more attention. This is a result of the low rates of electricity in several SSA nations. For the best possible power extraction and operation, a hybrid energy system for power generation combines multiple energy systems, either renewable or a mix of fossil fuel and renewable energy sources. Hybridization of sources is a necessary prerequisite for power production in the period of decarbonization of the electrical grid through the use of renewable energy. The current push for the manufacture and uptake of hybrid renewable energy systems (HRES) is based on the desire to see more renewable energy (RE) in the world's energy mix.

Keywords: Energy policy in India, renewable energy barriers, prospects of renewables in India, renewable energy in India.

Introduction:
Over the past few decades, there has been an increase in the global demand for energy across all areas of human pursuits. Numerous papers and literature on energy studies have attributed this increase to socio-economic developments. These socioeconomic changes are typically linked to significant industrial and technological breakthroughs. However, rising social class and population expansion also contribute to rising energy use. Electricity is a key energy source that promotes socioeconomic advancements. Electricity spreads its tentacles deeply into every area that is necessary for society to function.The energy demand in India is drastically increasing, and by 2030 India's total energy demand will be more than double while electricity demand will almost triple than today [5]. Moreover, current conventional sources are responsible for climates as well as unlimited in capacity. Hence, an alternative form of the generation which is cleaner and unlimited will be indispensable. RE installed capacity accounts for 22.5% [6] of India's total installed capacity for power production as of July 2019 [7]. India, the nation with abundant natural resources, has the immense potential for generating electricity through RE resources. The current day technologies have enabled for utilizing these renewable resources in a more efficient way of generating electricity [8].

Evaluation Of Mechanical And Durability Properties Of Eco-Friendly Concrete Containing Silica Fume And Pumice

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Abstract:
This study attempts to examine the characteristics of environmentally friendly concretes that contain large amounts of silica fume and pumice. The mechanical and durability properties of twenty different concrete mixes were examined from three days to 365 days in order to achieve this goal. Unlike the earlier research, pumice was used in conjunction with silica fume at high replacement levels of up to 60%. Pumice did not increase the chloride resistance or capillary water absorption at 28 days, according to durability tests and microstructural analysis; however, a high degree of enhancement in diffusivity was visible at this age because of the synergistic action of silica fume and pumice. After ninety days, there was a noticeable increase in the durability of the concrete mixtures containing pumice. The addition of silica fume contributed significantly to this improvement. Based on the assessments, concrete that is highly ecologically friendly might be produced by combining the use of silica fume with a large amount of pumice. For instance, the mixture with 60% pumice and 9% silica fume (124 kg/m3 cement) has a 365-day compressive strength of 75 MPa with a low level of global warming potential (GWP).

Keywords:Eco-friendlyconcrete ,Durability,Silica fume,Pumice,Ternarymixture.

Introduction:

One of the most polluting industries in the world is the production of Portland cement. According to certain theories, the cement industry is responsible for more than 7% of the carbon dioxide released into the environment (A.A.Ramezanianpour,2014,F. Moghadas Nejad et.al,2017). However, the manufacture of clinker uses a significant amount of natural resources, such as clay and limestone. As a result, ecologically friendly concrete production has drawn a lot of attention in recent decades (H. Mikulc˘ic´,et.al,2016). Unfortunately, a lot of concrete structures have poor mechanical qualities and might break down in harsh conditions because of durability issues (F. Massazza,2003). One of the successful approaches in lowering the concrete diffusivity against aggressive ions is partial replacement of cement with poz- zolanic elements. On the other hand, early lime consumption rates are low for many pozzolan species. Therefore, these materials were unable to increase the durability features of concrete at an early age, even though they did improve the durability and mechanical qualities over time. Fly ash and blast furnace slag are the most widely used types of supplemental cementitious materials (SCMs) and have been employed at high dosages. Nevertheless, some pozzolanic ingredients, such as metakaolin and silica fume, are too costly to have a practical effect on lowering CO2 emissions and have a considerable negative impact on the workability of concrete, so they cannot be used in high concentrations (E. Aprianti,,2017). This type of mixed cement lessens vulnerability to harsh environmental conditions and may demonstrate acceptable strength and durability performances at varying ages. Using ternary cement can be a suitable option in certain situations . It should be noted that while super-pozzolanic materials, such as silica fume, may improve the properties of cement hydration and durability , their extremely high surface area reduces the workability of concrete and makes high pozzolana dosages in concrete inappropriate.The current study investigated the effects of a high pumice

Experimental Investigation On Crack Pattern And Flexural Behaviour Of Reinforced Cement Concrete Composite Beam

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Abstract:

In recent days, the construction industry has faced an acute shortage of raw materials. Our responsibility is to reduce the impact of using concrete materials on the environment. Concrete must be used as efficiently as possible. In terms of saving material, the ideal situation when designing a structure is to reduce the weight of the structure without having to compromise its strength and usability. Partial replacement of concrete under the neutral axis is an idea that can reduce the weight ofand save material. This paper deals with an experimental study on the partial replacement of concreteunder the neutral axis by placing bricks with and without void. Specimens of different varieties of solid RC beams and twocomposite beams are cast and tested under two-point bending loading. The results of load deflection ratio, loadstress ratio, first crack, ultimate load, concrete savings, and beam self-weight reduction are compared and the effectsare investigated..

Keywords: Composite Beam, Neutral Axis, Light Weight Material, Self-Weight, Mix Design, Crack Pattern

Introduction:

Reinforced cement concrete is one of the important component in the construction industry. Now a day, the use of concreteincreased very much. In this paper an attempt is made for reduction of concrete and self-weight of the beam by replacing theconcrete below neutral axis. However, concrete have low tensile strength and when a concrete member is subjected to flexure, theRegion under the neutral axis of the cross-section is considered ineffective when it is in tension at ultimate limit states. Thebehavior of brick and RCC composite beams is same to that of reinforced concrete beams. Therefore, bricks are used within theun-utilized area. Steel bars are good for tension, so placing steel bars at bottom of beams will resist the tensile bending stressesand also overcome the tensile weakness of the bricks. It should be noted that the bonding between the steel bar, brick and concreteshould be good for avoiding the slip between them. In this study by reducing weight of the beam and saving quantity of concreteby saving cement reduced the greenhouse gasses emissions. So it is environmental friendly.

Using object modeling techniques, the identification of confined object models in error

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Abstract :
This paper proposes a new efficient methodology for fault detection from the structural modeling of a complex system using the UML class diagram. The crisp and precise constraints on the attributes and relationships are represented using the formal specification language, Object Constraint Language (OCL). Model verification is done by converting the model to Constraint Satisfaction Problem (CSP) and by solving the problem. Performance is analyzed by both bounded and unbounded validation.

***Keywords*:** Complex system; constraints; model verification.

Introduction:
Object Modeling Technique (OMT),developed by Rumbaugh*et al.* in 1991 is an object modeling approach using objects and their behaviour, which helps to reduce the complexity in developing a complex system. The purpose of OMT is mainly testing physical entities before building them by simulating the object model, dynamic model and functional models. OMT also helps to visualize the system so that the complexity involved in building the system can be reduced by using Unified Modeling Language (UML) which is a standardized modeling language enabling developers to specify, visualize, construct and document artifacts of a software system.Class diagram, which is a structural UML diagram focuses on the static aspects of the system. Class diagramstypically specify the main elements of the entities of the system, but fail to provide all the relevant aspects of thespecification. Designers usually need to add constraints to the model to cater to this weakness of class diagrams.These constraints are often described in natural language. However, constraints written using natural languageinevitably lead to ambiguities, and hence Object Constraint Language (OCL), which is a formal specificationlanguage developed by IBM, could be employed. OCL offers three types of constraints on class diagrams with afourth constraint offering the user the ability to extend the class diagram. They are *Pre-condition, Postcondition,Invariant* and *Definition.*Modeling of complex systems is relevant since a complex system consists of many components, with numerousrelationships and interactions between these components and the components will be linked through many denseinterconnections and they cannot be described by a single rule and their characteristics are not reducible to onelevel of description. This complexity leads to many errors that may creep in during modeling. This necessitateshe Validation and Verification (V&V) of models. But, UML class diagrams annotated with OCL constraints isjust a pictorial language used to make software blue prints and model verification and execution is not possiblewith the structural modeling of UML.In this paper, a methodology is proposed to translate the Object oriented class diagram with its constraints to anintermediate representation where formal verifications could be performed. Formal validations are alsoemployed on the class diagram before code generation, which would enable to develop robust systems.The proposed methodology is implemented in a constrained complex system of Tamil Nadu Tuticorin Power System (TTPS). The thermal power plant is a complex system with many sub-systems. Constraints are defined for intra class invariants, for inter class invariants and multiplicity constraints. The functional behaviour of the constrained objects is defined and tested with instance values that are validated against the constrained system. Some of the

TEXT SUMMARIZATION EVALUATION METHODS: A REVIEW

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Abstract:

The internet has a wealth of information available. By compiling a summary from the material that is accessible, significant information can be obtained. Making a summary by hand is a challenging process. As a result, the academic community is creating new methods for automatically creating summaries of texts. A summary is a condensed version of the original text that highlights key points. The foundations of automated text summarization are covered in this study. Assessing automated summaries is another difficult problem. Additionally, the difficulties in assessing summaries are discussed. Techniques for assessing the summary: Extrinsic and intrinsic factors are both thoroughly explained.

Keywords: Text Summarization; Summary Evaluation;extrinsic evaluation; Intrinsic evaluation

Introduction:

Text summarization [Jezek and Steinberger (2008)] is a critical technique for comprehending textual material in the rapidly expanding universe of information that exists today. A situation known as "infobesity" is brought about by the abundance of text resources available on the internet that supply knowledge beyond what is necessary. It is challenging for humans to choose knowledge from the vast amount of information available from many sources. The amount of information makes manual information summary a very tough, intricate, and demanding process. The goal of automated text summarization is to condense the original text into a manageable amount while maintaining its overall meaning and contents. Summary has the benefit of saving reading time and effort. It is not sufficient to generate automatic text summaries; assessing such summaries is also a crucial effort. There are number of severe challenges in evaluating summaries [Mani (2001)], which make summarization evaluation a very interesting problem: (1) There is the chance of a system generating a good summary that is moderately different from summary generated by human. (2) Human evaluated the summary is expensive way of summarization. Instead of human evaluation, scoring program is preferable, that can be repeatable. (3) The scale and complexity of evaluation increases due to different compression rate of summary.

A Survey on the Approaches in Targeting Frequent Sub Graphs Mining

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Abstract :
Graphs are regular information design used to speak to/demonstrate certifiable frameworks. Outline Mining is one of the arms of Data mining in which voluminous complex data are tended to asgraphs and mining is done to comprehend picking up from them. Visit sub diagram mining is a sub areaof chart mining space which is widely utilized for chart order, building files and diagram bunchingpurposes. The successive sub chart mining is tended to from different points of view and saw in variousways based upon the area desires. In this paper, an overview is done on the methodologies in focusing onvisit sub graphs and different versatile procedures to discover them.

Keywords: Candidate Graphs, Pattern-growth,Support, Apriori-based.

Introduction:
Lately, numerous creators have conveyed numerous calculations and devices for changing over voluminous information into helpful and significant data [1]. Identification of continuous graphs/sub graphs in a graphdatabase or in a solitary expansive graph is a piece of incessant graph mining which can be utilized for groupingundertakings [3], graph bunching and assembling records. Visit sub graph disclosure is a procedure ofrecognizing much of the time happening sub graphs from an arrangement of graphs (graph database) or a solitary expansive graph with recurrence of event is no not as much as a predetermined limit. Since sub graphdisclosure is a bit of FSM (visit sub graph mining), the term 'FSM' is utilized as a part of whatever is left of thispaper. The regular sub graph mining is tended to from different points of view based upon the necessity and areadesires. Likewise it is seen from different bearings utilizing different methodologies. For instance, Borgelt andBerthold [4] considered HIV-screening dataset and discovered dynamic substance structures in it by
differentiating the support of regular graphs between different distinctive classes. Deshpande et.al [5] groupedcompound structures by thinking about successive patterns as a cardinal component. Huan et.al [6] examinedprotein structure families by applying continuous graph mining procedures. To perform graph look in a speedierway, Yan et.al [7] utilized successive graph patterns as ordering highlights.Likewise in a large portion of the concoction applications, the end-client isn't just intrigued by finding incessantgraphs (which uncover about the forecast of biochemical exercises) however in recognizing huge patterns (which may fill in as impetuses for some biochemical exercises) which from time to time happen. So concerninggraph characterization, still examinations are done to distinguish which substructure (visit sub graphs/huge subgraphs) has the cardinal impact to the grouping. In this paper, an overview is constrained on articulating fewexisting versatile strategies to discover visit sub graphs in a graph database/in a solitary huge graph.

EKSPANPIXEL BLADSY STRANICA: Enhancing Front-End Website Performance With Computer-Aided Software Engineering Tool

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Abstract:

The goal of this study is to develop Expanpixel Bladsy Stranica (EBS), a front-end website engine that will improve the efficiency of front-end website creation. The method of creating a front-end website engine uses a computer-aided software engineering (CASE) tool model, and it is then made online (website-based) to make it easier to access from anywhere, and evaluated by manually creating a front-end website and using EBS. Following that, the data was analyzed using a statistical formula. The results of increased efficiency in front-end website creation performance, which occurred on average by 83.60% of the total developer.

Keywords: Ekspanpixel Bladsy Stranica; Performance; Efficiency; Dynamic Canvas; Front-End; Website; Software Engineering; CASE Tool; Website Application; Time.

Introduction:

The information and communications technology sector in Indonesia is developing at a very fast pace, which is stimulating innovations or changes in the management of various services that can help the community move more easily, whether through cellular networks or computer devices. As a result, the use of information technology becomes crucial for supporting performance, quality, and decision-making in areas where it can be done with speed, accuracy, and efficiency. Human resources are required to develop and oversee the trustworthy application of information technology as a result of this trend.A computer-aided software engineering (CASE) tool is needed to achieve this because it can automate tasks without taking over the analysis and design responsibilities. There are many different categories of CASE product tools available on the market these days. Beginning as a tool for modeling the life cycle of products, it has expanded to include project management, documentation, simulation, programming, anatomical analysis, disease diagnosis, security, game engines, education, aeronautics, simulation training, interface design, and numerous other categories 1 through 13. In order to give an organization greater leverage over quality and performance, it is necessary to combine the application of information technology with CASE.According to reference 14, the information technology industry is currently in a state where completing tasks requires a significant amount of time, effort, and skill, as well as human resources. On the other hand, a number of businesses involved in specialized information technology consistently surface from year to year, one of which is a gaming company. Due to a shortage of qualified human resources or skills that meet company standards, the average employee of his company, based on a survey conducted among 121 game companies in Indonesia, holds multiple jobs.As an illustration, a game production company or department might hire people to make advertising tools. This generally hinders production efforts because the advertising tool.

A soft computing approach to software reliability prediction
An Overview Of Recent Developments In Computational Predictions Of Interactions Between Proteins

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Abstract:
The research uses the MATLAB toolbox to forecast software reliability using techniques based on fuzzy logic (FL) and neural networks (NN). This study employs four techniques to forecast the dataset's reliability that was obtained from Bell Laboratories' John Musa. These techniques include neural networks, fuzzy-neural networks, neural-fuzzy networks, and fuzzy algorithms. The fuzzy-neural approach produced the best results for us out of all the suggested strategies after the data review. The Levenberg-Marquardt algorithm is utilized in the fuzzy-neural technique to train the neurons. We have tested our proposed methodologies on testing data, with 15% of the data coming from failure data set.
Keywords: Software reliability, neural network, Fuzzy- neural

Introduction:

As software becomes more and more integrated into our everyday routines, worries about the quality of software products have increased. Because of this, dependability is now the top priority for both software developers and users. Software reliability is becoming a more important topic. According to ANSI, software reliability is the likelihood that the program will operate without error for a certain amount of time in a given environment . It is a crucial component for calculating software time and quantitatively characterizing software quality. One of the most crucial non-functional requirements for software is reliability . It is impossible to accurately estimate reliability for a service-oriented system.
The Software Reliability Growth Model (SRGM) attempts to measure the state and behavior of software reliability, aid in the development of reliable software, and forecast the point at which product release is justified due to increased reliability. Parametric and nonparametric models are the two main types of Software Reliability Growth Models (SRGMs). The majority of parametric models rely on presumptions regarding development environments, software failure types, and the likelihood of certain failures occurring. These comprise the Goel-Okumoto model, the SHOOMAN model, the non-homogeneous Poisson process model, etc. Without making the assumptions of parametric models, nonparametric models merely use failure history to forecast reliability measures . Over the past forty years, software reliability has remained a focus of research; nonetheless software reliability modeling still contains limitations.

Much work has been done in the field of soft computing over the past 20 years employing hybrid approaches involving fuzzy logic, neural networks, and evolutionary algorithms . When it comes to reliability prediction, both statistical and soft computing approaches produce noteworthy outcomes, however the results vary depending on the type of data. Software dependability prediction approaches come in a variety of forms, but one must carefully consider each method in light of their research issue before utilizing any of them .

Neural networks present promising methods for modeling and predicting software reliability. Reliability estimation approaches based on fuzzy logic are more suited for accounting for imprecise and ambiguous data. These models typically depend on expert knowledge, which is frequently too general to match a

ICMRI/2018/46

Model Test On Soft Soil Reinforced With Stone Column

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Abstract:
As a great ground reinforcement method, the usage of stone columns is growing in popularity for supporting flexible constructions that sit on soft soils, like oil storage tanks, embankments, etc. Because the soft soil provides very little lateral confinement, stone columns bulge excessively under load, improving bearing capacity only somewhat. By adding some appropriate geosynthetic reinforcement to the stone columns, the composite soil's strength can be further strengthened. In the current study, the impact of reinforcement and the l/d ratio on the bearing capacity of the composite soil was investigated using laboratory model experiments on floating and fully penetrating single stone columns with and without geosynthetics. Research has also been done on the distribution of stress in the soil mass and the bulging of stone columns. The results of the tests show that the encasement significantly raises the ultimate bearing capacity.

Keywords: Geosynthetic, Soft Clay, Stone Column, Ground Improvement.

Introduction:
A nation's ability to develop depends mostly on its ability to construct an adequate network of roads, buildings, tunnels, bridges, and other civil engineering projects. India's lengthy coastline is covered in a large expanse of soft soils that are highly compressible and have a limited bearing capacity.It is necessary to pass through soft soil in order to provide a pile foundation sitting on hard strata for the construction of high rise skyscrapers and other significant structures. However, ground improvement techniques are typically seen as cost-effective for low-rise buildings and other flexible structures that can withstand some settlements, such as factories, liquid storage tanks, and rail/road embankments. One of the best methods that is employed globally is the usage of stone columns. Stone columns subjected to compressive loads fail in Different modes, such as bulging, general shear failure and sliding. For stone columns having lengths greater than critical length (i.e., about four times the diameter of the column), it is recognized that the bulging failure governs the load carrying capacity whether they bear on stiff layer or penetrate partially into the medium stiff soil Stone columns that are subjected to compressive stresses can collapse in a variety of ways, including sliding, general shear failure, and bulging. It is known that the bulging failure controls the load carrying capacity of stone columns with lengths longer than the critical length, or around four times the column's diameter, regardless of whether the columns rest on a stiff layer or only partially penetrate the medium stiff soil. There have been numerous reports of instances when the soft clay surrounding the stone column failed to act as a restraint, causing the soft clay to excessively bulge and squeeze into the aggregate's spaces [4]. In these circumstances, strengthening the stone columns with an appropriate geosynthetic can increase their bearing capacity. Numerous scholars have examined the behavior of reinforced stone columns [5, 6, 7, 8]. Since the majority of the research to date has only looked at fully piercing columns, both fully penetrating and floating columns have been examined in this study.

Navigating the Intersection of Internet of Things and 5G Networks: A Comprehensive Guide

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Abstract:

The convergence of Internet of Things (IoT) and 5G networks represents a watershed moment in the evolution of connectivity, heralding a new era of possibilities and complexities across diverse industries. This pivotal juncture promises a spectrum of unprecedented opportunities intertwined with formidable challenges that necessitate a nuanced approach and comprehensive understanding. In response to this transformative landscape, this guide meticulously traverses the intricate intersection of IoT and 5G, meticulously examining their symbiotic relationship and illuminating the multifaceted dimensions of their coalescence. By delving into the technical intricacies underpinning both Internet of Things (IoT) and 5G, this guide provides readers with a profound comprehension of their foundational principles, empowering them to navigate the evolving terrain with astuteness and foresight. Moreover, through an exploration of real-world applications spanning various sectors, readers are afforded a panoramic view of the tangible manifestations of this convergence, elucidating its potential impact on businesses, societies, and economies at large.

Introduction:

The proliferation of Internet of Things (IoT) devices and the imminent deployment of fifth-generation (5G) wireless networks have captured the attention of industries worldwide. As these technologies continue to evolve, their convergence promises to revolutionize various aspects of modern life, ranging from healthcare and transportation to manufacturing and smart cities. This comprehensive guide aims to serve as a roadmap for navigating the intricate landscape where IoT intersects with 5G networks. In this introduction, we will provide an overview of the key concepts underlying IoT and 5G, highlighting their individual significance and the synergies that emerge when they converge. We will delve into the technical foundations of both technologies, discussing their capabilities, limitations, and the transformative potential they offer. Furthermore, we will outline the structure of this guide, which is designed to offer a comprehensive exploration of the intersection between IoT and 5G networks, covering technical aspects, real-world applications, and broader implications for businesses and society. Through this guide, readers will gain a deeper understanding of the opportunities and challenges presented by the convergence of IoT and 5G, empowering them to navigate this dynamic landscape effectively.

Using a combined deep learning and ARIMA model, roll motion prediction

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Abstract:
One of the better, more adaptable, and simpler linear models for forecasting and univariate time series analysis is the auto regressive Integrated Moving Average (ARIMA). In addition, some time series forecasting research projects propose the Artificial Neural Network (ANN) model as a substitute nonlinear forecasting model. While the ANN model is good at capturing nonlinear patterns, the ARIMA model does a decent job of capturing linear patterns. Roll motion prediction has made extensive use of ANN and ARIMA models. In addition, ARIMA and ANN can be combined as a hybrid model to benefit from their combined strengths in both linear and nonlinear modeling. In order to integrate ARIMA and the Deep Neural Network (DNN) model—an ANN model with numerous hidden layers—we modify the hybrid methodology in this research. A Floating Production Unit's (FPU) roll motion is used in the actual data set. According to the empirical findings, the DNN-ARIMA hybrid model is the most successful at improving forecast accuracy and is the best model for forecasting roll motion when compared to non-hybrid models.

Keywords: ARIMA, forecasting, hybrid, roll motion, time series

Introduction:
One of the ship motions that is studied the most is roll motion. The roll motion can be used to examine the ship's safety. Preventing ship hazards, such as capsizing, is the aim [6]. Ship containers may sustain damage as a result of the rolling action. For this reason, the key to comprehending the ship's stability is the roll motion forecast. There are various methods for predicting ship motion. Time series forecasting is among them. One of the most widely used time series models in time series analysis is the auto regressive integrated moving average (ARIMA)[25,12]. In time series forecasting, it has been widely applied. A number of time series processes, including pure auto regressive (AR), pure moving average (MA), combination of AR and MA (ARMA), and ARMA with differencing (ARIMA), can be expressed in a general form as ARIMA. Given that ARIMA is a linear model, a linear pattern in the data is presumed. But data in actual problems doesn't always follow a linear pattern. It is not always possible to forecast with acceptable success using the line approximation. An alternative nonlinear model that has been thoroughly researched and applied in time series forecasting is the artificial neural network (ANN)[24].The main benefit of the ANN model is its capacity for nonlinear modeling. It is not required to name a specific model form. Based on the features provided by the data, the ANN model adapts for medicine. This data-driven technique is applicable for many empirical datasets for which no theoretical guidance is given to recommend an acceptable data producing process [17]. Several time series models have been used to study research on ship motion prediction. The roll motion was predicted by Zhang and Ye [26] using the ARIMA model. Nicolauetal.[13]used an ANN model in their study to forecast a conventional ship's roll motion.To investigate the neural architecture, several noise settings and training datasets were used.The outcomes demonstrated that the ANN model's predictor performed effectively for a range of input noise levels.Both ARIMA and ANN models have been employed by Khanetal.[8] to forecast the roll motion.Conjugate gradient (CG) and genetic algorithms were combined in the feed forward neural network model of the ANN, which was modeled after the ARIMA(15,0,1) model (GA). The outcomes demonstrated that the ANN model outperformed the ARIMA model in roll motion prediction. The feedforward neural network model utilized was an ANN with a mix of the conjugate gradient (CG) and genetic algorithms (GA) and the ARIMA model, which was ARIMA(15,0,1).The outcomes demonstrated

Flexible Interconnections of Photovoltaic Cells

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Keywords: PV Cell, applications, Grid Interconnections, automated testing, battery charging.

Abstract:
Today, distribution system hosting capacity studies for distributed solar photovoltaics (PVs) and other distributed energy resources (DERs) are based on worst-case scenarios that assume DERs operate in unmanaged or unconstrained ways. Under the current paradigm, DER hosting capacity can be limited or costly grid upgrades may be required due to potential, but infrequent, worst-case conditions. DER management systems (DERMS) can enable additional DER to be interconnected as a managed resource that is curtailed to avoid violations under the infrequent worst-case conditions. This scheme, referred to as flexible interconnection, allows the interconnection of more DER while resulting in a minimal reduction in productivity to DER owners. This study assesses the techno-economic value of flexible interconnection for PV enabled by DERMS through detailed modelling and analysis of a real North American distribution feeder. It focuses on using DERMS to avoid distribution system upgrades due to thermal overloads and illustrates the economic value of a flexible interconnection arrangement across a range of PV system capacities.Findings indicate that the value of a flexible interconnection arrangement diminishes for PV systems with larger DC/AC ratios and as interconnected PV capacity increases, given increased amounts of curtailment.

Introduction:
According to Jumptap, Android occupied 58.8% of the mobile market in 2012 and the share was increasing [1].Corresponds with the growth of Android's market share, the number of applications for android had an explosive growth. Google announced that the download of its electronic products has exceeded 25 billion and the applications have exceeded 675 thousand [2]. What came along with the increasing were lots of problems. Lots of malicious codes were injected to the hot applications to execute malicious behaviors and the behaviors led to great security threats. Common results of malicious behaviors are divided into two kinds: economic loss and privacy leakage.Today, distribution system hosting capacity studies for distributed solar photovoltaics (PVs) and other distributed energy resources (DERs) are based on worst-case scenarios that assume DERs operate in unmanaged or unconstrained ways and might generate to their full ability at any time. Under the current paradigm, DER hosting capacity can be limited, or costly grid upgrades may be required due to potential but infrequent worst-case conditions. DER Management Systems (DERMS) can enable additional DER to be interconnected as a managed resource that is curtailed to avoid violations under the infrequent worst-case conditions. This scheme, which is referred to as flexible interconnection of DER [1], allows the interconnection of more DER while resulting in a minimal reduction in productivity to DER owners. Flexible interconnection has the potential to increase distribution system utilisation and to provide economic benefits to the DER owner through reduced interconnection costs. While commercial DERMS solutions [2] have

Reducing Linear Restrictions in Constant Slope Hybrid Dynamic Systems

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Abstract:
Dynamic hybrid systems (DHS) encompass a broad range of embedded and real-time systems in which the behavior is derived from the interplay between discrete and continuous elements. Generally, general hybrid automata (HA) are used to represent these systems. HAs extend finite state automata by using linear inequalities and differential equations on the variables used to characterize the system. The problem of reachability is recognized as undecidable for Hybrid Automata in general. This indicates that no algorithm exists that can solve the problem in its entirety for a computer. Nonetheless, a number of limitations on universal hybrid automata are put up in the literature, wherein the reachability problem is decidable while simultaneously including a wide range of systems. A fascinating class of Rectangular HA (RHA) that addresses significant facets of real-time systems is the subject of our attention. Additionally, the combination of linear constraints defines the configurations and transitions of this modeling framework. Moreover, the system of constraints on system variables creates a convex polyhedron. Many times, certain procedures are used to compute the constraints, which can result in redundant constraints in situations when it is difficult to identify them. In this work, we suggest a method for replacing the original linear constraints with an equivalent and reduced polyhedron.

Keywords: Linear constraints, polyhedron, hybrid automata.

Introduction:
Systems with the interaction of both discrete and continuous components are known as dynamic hybrid systems (DHS) [1, 2, 3, 4]. Discrete and continuous aspects are used to characterize a wide range of embedded and real-time systems, computer automated systems, industrial systems, and electrical systems. Complex and difficult issues frequently arise when doing DHS-related tasks like modeling, supervision, and analysis. DHS models are of interest to two communities: the continuous systems community and the discrete event systems (DES) community. DHS are described in the community of continuous systems as systems that switch between different continuous models. This facilitates the application of easily accessible approaches from continuous systems literatures by researchers and engineers with backgrounds in continuous systems. However, when dealing with hybrid systems that include a significant discrete component and frequently flip between a myriad of distinct continuous models, calculations and analysis using these models can quickly become overwhelming. Several modeling frameworks are now being used in the DES sector to model DHS. The hybrid and timed extensions of Petrinets [5,8,9,10,11] and automata [6,7] that are most frequently utilized. Time constraints are applied to states/configurations and event transitions in timed extensions, which are based on automata such as timed automata [12,13], stop watch automata [14,15], and time transition systems [16, 17].The behavior of the continuous system is characterized by globalclocks. But as automata are not inherently endowed with an understandable graphical representation, the models they capture can quickly become unmanageable, particularly in the case of sophisticated DHS, necessitating a significant number of configurations, clocks, and/or clock resets. Regarding the hybrid automata

A Multi-Objective Energy Optimization Strategy for Smart Grids Taking Renewable Energy and Battery Energy Storage Systems

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Abstract:
Multi-objective energy optimization is pivotal for reliable and secure power system operation. However, multi-objective energy optimization is challenging due to interdependent and conflicting objectives. Thus, a multi-objective optimization model is needed to cater to conflicting objectives. On this note, a multi-objective optimization model is developed, where a non-dominated genetic sorting algorithm is employed to optimize objectives pollution emission, operation cost, and loss of load expectation (LOLE) considering renewable energy sources (RES). RES, like wind and solar, are intermittent and uncertain, which are modelled using a beta probability density function (PDF). The developed method's effectiveness and applicability are analyzed by implementing it on the 30-bus system, and the results are compared for two cases. Findings reveal that the developed multi-objective optimization model minimizes operation cost, pollution emission, and LOLE by 59%, 7%, and 2.67%, respectively, compared to existing models.

Keywords: Renewable energy, energy allocation, green computing, k-means clustering, sustainable energy.

Introduction:

The demand for electricity is rising in tandem with both technical advancement and population growth [1]. Global demand for electrical load is predicted to increase by 30% in 2040 over 2018 [2]. An important contributing element to the rise in energy consumption is peak power demand [3]. In addition, fossil fuels account for 80% of power generation globally, contributing to pollution and climate change [4]. It is essential to cut energy use and switch generation to distributed energy sources (DESs) at distribution networks [5, 6, 7, 8, 9, 10]. This can only be accomplished by switching from the conventional grid to the smart power grid (SPG), which is the current power grid. Information and communication technologies (ICT) are combined with a traditional grid in the SPG [10], [11], [12]. Demand response (DR) and distributed generation initiatives are supported by the SPG, which reduces energy use and emissions of pollutants to create sustainable societies. Critical components of the SPG, power scheduling and energy optimization are essential for customers and utilities alike [11]. Consumers adjust load patterns in power scheduling and energy optimization via DR in response to changing prices or financial incentives provided by the utility [13].By reducing energy demand during peak times or during emergencies, utilities promote energy optimization. Energy optimization plays a key role in load curve smoothing and distributed generation scheduling, which reduces load during peak hours and raises load factor [14].

Clinical and Gene Expression Integrative Approach for Classifying Epithelial Ovarian Cancer Stage Subtypes

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Abstract:
Globally, ovarian cancer (OC) ranks as the fifth most common cause of death for women. The International Federation of Gynecology and Obstetrics (FIGO) stage-directed supervised classification approach was used to molecularly classify epithelial ovarian cancer (EOC) into two sub-classes.This research uses a molecularly sub-classified dataset of epithelial ovarian stages to suggest a clinical and gene expression integration approach for cancer stage subtyping and classification.The suggested method was tested successfully using the five breast cancer phenotypic subgroups in earlier studies. This research presents an integrative strategy combining clinical and gene expression to classify stage subtypes using a variety of classification algorithms. Based simply on gene expression or clinical data, other examined classifiers' classification results were inferior to those of the ensemble learning classification algorithm, according to experimental results.

Keywords:Ovariancancer;classification;clinical;geneexpression

Introduction:

After ischemic heart disease and stroke, cancer is the second leading cause of death worldwide, according to data from the World Health Organization (WHO) [1]. The eighth most frequent cancer in the world among women is ovarian cancer (OC), according to the Ovarian Cancer Research Fund Alliance (OCRFA) [2, 3]. 90% of patients with ovarian cancer are diagnosed with epithelial ovarian cancer (EOC), which has an advanced stage and a poor prognosis. There are five main histologic subtypes (histo-types) of EOC: mucinous (MOC), clear cell (CCOC), endometrioid (ENOC), high-grade serous (HGSOC), and low-grade serous (LGSOC) [4].

Numerous studies [5–11] have addressed the classification of OC subtypes. These studies employed machine learning approaches to determine the subtype that best matched the feature set and projected it based on the tumor's cell type. From stage II to stage IV of the International Federation of Gynecology and Obstetrics (FIGO) stage-directed supervised classification approach, the authors of [12] molecularly subclassified EOC into two sub-classes in 2014. EOC was subclassified in that study without regard to the clinicopathological identifying characteristics related to cell type. Additional recent research articles have provided an outline of the classification of cancer subtypes and how machine learning became crucial to overcoming this obstacle [13–18]. This paper proposes an integrative approach to cancer stage subtyping based on gene expression and clinical datasets. An integrative approach for stage subtyping classification using gene expression and clinical datasets was used in our previous research [13] on the five phenotype breast cancer subtypes. It has been shown to outperform dimensionally reduced gene expression or clinical features when used solely for subtype classification. Furthermore, it was critical to test the approach on various types of subtyping phenotype, molecular, and function subtyping. The remainder of the document is structured as follows: The machine learning-based

Neural Networks Inference into the IoT Embedded Devices using Tiny ML for Pattern Detection within a Security System

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Abstract:
The paper presents the implementation challenges of a proof of concept development for image processing with artificial intelligence neural network into an embedded device. Because of the hardware constraints of the embedded device – e.g. 16 KB RAM and 128 KB of EEPROM, the deep learning/the training and the model of the neural network is processed in cloud – e.g. Google Cloud Platform – AI – Artificial intelligence, as shown in second section. After this step, the trained neural networks model, values and tensors are translated with TinyML into native code for the embedded devices and deployed on a specific hardware platform – e.g. Arduino Nano 33 BLE Sense or SparkFun Edge Development Board Apollo3 Blue - for the neural network inferences – e.g. person detection or NLP into specific area, as described in third section. The last section shows the conclusions and the security challenges for deploying neural networks into embedded systems which are used for security systems such as: monitoring and surveillance cameras, drones visual computing for securing field areas, IoT systems etc.

Introduction:
There are multiple software development kits, libraries and frameworks for developing Neural Networks and Deep Learning applications. Most of them are pushing Python based code, but Python has poor results for the performance benchmarking on real CPU and GPU cores. This maybe an advantage for the cloud providers but not necessary an advantage for the companies or software integrators who are renting processing power into the Cloud. Most used framework/API is Keras. are which can be accessible from the Keras API. Keras API may address via API multi-back-end Artificial Intelligence Cloud solutions, such as: Tensorflow, Theano, MxNet. Tensorflow is polyglot and is supporting Java and JVM based languages as well, but for the moment, Python is pushed into a lot of books and tutorials. Additionally, in the A.I field are various libraries/frameworks/even OS-es for dedicated processing from NLP – Natural Language Processing – e.g. Apache NLP to Visual Computing and generic deep learning – e.g. Eclipse deeplearning4j, Apache Spark or ROS – Robot Operating System

ARTIFICIAL INTELLIGENCE (AI) AND DATA SCIENCE FOR DEVELOPING INTELLIGENT HEALTH INFORMATICS SYSTEMS

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Abstract:
Artificial Intelligence is called the new nervous system of the healthcare domain. Application of Artificial Intelligence in Health information comprises of training databases for health data, health, medical data exchange clinical decision support system, creation, and use of knowledge. Artificial Intelligence has the potential to analyze immense volume and variety of data and reaching the unreached by augmenting the process of automation and filling gaps in a healthcare labour shortage. Medical data and healthcare statistics have now evolved as a separate domain called Health Informatics. Technology aids to achieve healthcare goals and improve the accessibility of healthcare information. This paper provides insights into the role of artificial intelligence and data science for developing intelligent health informatics systems, trends of advancing technologies such as machine learning, big data analytics. The need for a comprehensive training database for large scale health data, healthcare information systems, and medical data exchange, initiatives taken by the government for shaping the future of public health, community health and healthcare delivery from a personal level to a system-level have been discussed.

Introduction:
The 21st century has witnessed transformation in the field of medical science. Health care organizations have adopted evolving technologies. The emerging use of Artificial Intelligence in the health care domain can be understood as a collection of technologies that enables machines to act, sense, and comprehend similarly to the human brain. Artificial Intelligence has the potential to perform administrative functions and is being used in research and training purposes as well. The digital revolution has the potential to improve healthcare quality. It has created new technology in order to tackle large data sets, solving complex Problems that previously required human intelligence. Artificial Intelligence has the potential to analyze immense volume and variety of data. It improves the capacity to collect vast sums of information and has led to the intervention of machine learning and big data analytics. The Application of Artificial Intelligence in healthcare is categorized into several broad categories, i.e., Descriptive, Predictive, and Prescriptive. The subcategories include support for physicians, automation of clinical documentation, image analysis, administrative workflow assistance, virtual observation, and patient outreach. The issue of information overload, which is being faced by healthcare professionals, is addressed by artificial intelligence. Machine learning is employed to look into high volumes of healthcare data. The phenomenon is of how information is analyzed known as 'Filter Failure.' The primary cause for

Analyzing the effects of size, molding pressure, and pre-treatment on the flexural mechanical performance of chopped bagasse-polyester composites

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Abstract:
Three processing parameters are examined in relation to the flexural mechanical performance of chopped bagasse-polyester composites. The size of the chopped material, the molding pressure, and the pre-treatment from the bagasse material's prior processing on mills for the extraction of sugar and alcohol or liquor were the parameters that were investigated. The outcomes demonstrated that composites made of bagasse with a size beneath a #20 mesh screen, and The best mechanical performance was demonstrated by sugar and alcohol extraction preprocessed materials. This behavior was linked, in turn, to the bagasse surface becoming nearly entirely clean and to an increase in surface area. Only once a threshold value is reached does the molding pressure have an impact on the mechanical behavior. It had an impact connected to the minimization of entrapped voids and encouragement of closer interaction between bagasse and the resin matrix. The outcomes make it possible to choose the ideal blend of bagasse size, origin, and molding pressure.

Keywords: Lignocellulosic composites; Industrial wastes; Mechanical behavior; Processing parameters

Introduction:

As we approach the new century, agro-business is emerging as a key tenet of humanity's sustainable growth. Under this situation, lignocellulosic Among composite materials, reinforced resin matrix composites often occupy a pertinent place.Indeed, numerous significant industrial sectors, including the automobile industry, are already showing interest in lignocellulosic fiber composites [1]. But in a lot of cases,leftovers from conventional crops, like rice husk or

Dynamic mechanical behavior and thermal characteristics of nylon 6 composites loaded with microcrystalline cellulose (MCC)

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Abstract:
Using thermogravimetric analysis (TGA), dynamic mechanical thermal analysis (DMTA), and differential scanning calorimetry (DSC), the dynamic mechanical behavior and thermal characteristics of nylon 6 composites containing 2.5 wt% to 30 wt% MCC were examined. The DSC findings showed that there The addition of MCC to the composites did not result in any consistent or noteworthy changes to the glass transition (Tg), melting temperature (Tm), or crystallization temperature (Tc). Additionally, the DSC data showed that the difficulty of polymer chains to properly integrate into developing crystallinity lamella caused the crystallinity (Xc) to diminish at high MCC loading levels (more than 20 weight percent). Because of the MCC's reinforcing impact, storage modulus from DMTA increased with increasing MCC level. As the MCC concentration rose, there was no discernible change in the tan_peak values obtained from DMTA. Additionally, DMTA shows a considerable decrease in the amplitude of the tan_maximal peak of MCC filled composites.in the vicinity of the glass transition temperature. Additionally, thermogravimetric research revealed that the MCC did not exhibit substantial early deterioration below 300 °C, indicating thermal stability and the potential for high-temperature applications of MCC-filled composites, such as "under the hood" applications in the automotive industry.

Introduction

The market has paid noteworthy attention to the development of new composite materials generated from wood fiber and thermoplastic polymer matrices during the past few decades. Composites made of thermoplastics and wood fiber are Compared to mineral and glass fillers, they are less abrasive to processing equipment, lightweight, inexpensive, and have great strength to weight ratios [1, 2]. They are also recyclable. Despite these appealing qualities, the hemicellulose component of wood fibers deteriorates over 180 °C, hence the processing temperature of these composites is limited to roughly 200 °C. Because certain polymers' melting points shouldn't exceed 200 °C, which limits the application of engineering thermoplastics like nylon and polyethylene terephthalate [1-6]. Research on the thermogravimetric examination of wood components Polymers demonstrate that compared to other wood component polymers, the refined cellulosic component of is thermally more stable [1-6].Considering that they have higher heat stability than wood fibers,

Surface and interphase characteristics of wood composites treated with PVC-copper amine

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Abstract:
The interfacial shear strength between wood and polyvinyl chloride (PVC), as well as contact angles and surface energy of the wood, were examined and utilized to track the changes made to the surfaces of the wood after it was treated with a copper ethanolamine solution. An increase in wood's surface energy encourages PVC to get moist on wood surfaces following treatments. It is possible to attribute the improved interfacial shear strength between treated wood and PVC matrix to the stronger wood–PVC interphase development. In the formulation of wood fiber composites, this implies that treatment may be employed to improve the adhesion between the wood surface and PVC, resulting in products with improved mechanical properties and superior biological and physical performance against decay and insect-destroying wood.

Introduction:
We previously reported that wood PVC composites exhibited dramatically increased mechanical properties, including un-notched impact strength, flexural strength, and flexural toughness.compared to flour that was not treated, created with wood flour that was treated with copper ethanolamine [1]. According to reports, fiber-matrix adhesion is crucial for predicting the mechanical and physical properties of composites [1-6]. To efficiently transfer stress and distribute load throughout the fiber-matrix interphase, there must be strong adhesion [7, 8]. Adsorption and wetting, molecule entanglement after interdiffusion, electrostatic attraction, cationic–anionic group attraction, chemical reaction, and mechanical interlocking are a few of the adhesion processes that have been suggested [9].Enthalpy at equilibrium determines the degree of strength in the thermodynamic process of adhesion. Wetting is the initial stage of adhesion [7,10]. Adequate wetness is necessary.for the adhesion's thermodynamics. When the surface energy of the wetting substance (liquid probe or molten) is less than that of the solid substrate, good adhesion is produced [8,10]. The components of surface energy have been computed and wood wettability assessed using static contact angle measurements [11]. Zhang et al.'s earlier study [12] demonstrated that treated southern pine with mono-ethanolamine or copper ethanolamine had larger water contact angles than untreated southern pine. The migration of hydrophobic wood extractives to the wood surfaces or the reactivity of lignin's free phenolic groups with copper amine treatment were the two explanations given for this phenomena. There are two parts to surface energy: d S and P S to harmonic-mean and Young-Good-Girifalco-Fowkes geometric models that take into account interactions between hydrogen bonds or dipolarity [10]. The surface energy resulting from the dispersive and van der Waals forces is called the dispersive surface energy component (d S).Polar interactions are shown by the polar component (P S). Three distinct surface tension components are taken into account in the acid-base model: electron-donor for base (−S), electron-acceptor for acid (+ S), and Lifshitz–van der Waals for dispersion (LWS or d S) [10,13].

Effect of fiber content on the mechanical, morphological, and thermal characteristics of thermoplastic polyurethane/kenaf fiber reinforced poly(vinyl chloride)/blend composites

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Abstract:
Haake Polydrive R600 internal mixer was used to prepare a melt-mixed combination of bast fiber reinforced poly(vinyl chloride) (PVC) and thermoplastic polyurethane (TPU) called Kenaf (Hibiscus Cannabinus).The fiber percentage of the composites was varied, ranging from 20% to 40% (by weight), and the processing parameters were set at 140 C for 11 minutes, 40 rpm for speed, and temperature, respectively. The composite was squeezed using a compressing molding machine after it had been mixed. characteristics mechanical (i.e.impact strength, flexural characteristics, and tensile qualities) were investigated. Using a scanning electron microscope, the morphological characteristics of the tensile fracture surface were investigated (SEM). Thermogravimetric Analyses were used to investigate the thermal characteristics of the composites (TGA). When the amount of fiber in PVC/TPU/KF composites increases, the tensile strength and strain decrease. As the amount of fiber increased, the tensile modulus trended upward. Impact strength dropped as fiber content increased, although High impact strength (20.2 kJ/m2) was noted even with a 40% fiber content. In contrast, the fiber concentrations of 20% and 30% had greater impact strength, measuring 34.9 and 27.9 kJ/m2, respectively. The fiber/matrix adhesion is low, as demonstrated by SEM. There were three phases of thermal deterioration. Both the matrix and the composites were similarly stable in the first step. In comparison to the composites, the matrix displayed somewhat greater stability in the second step. Composites outperformed the matrix in terms of stability at the final stage.

Introduction:
Because natural fiber composites are more renewable, less harsh on equipment, biodegradable, and less expensive than synthetic fiber composites, they are being suggested as a replacement [1, 2]. Compatibility issues are among the challenges that natural fiber-polymer composites. The hydrophobicity of most polymers utilized in this field compared to the hydrophilicity of natural fibers causes incompatibility [3]. Compatibilizers are needed in the interface to improve adhesion and compatibility since this results in the fiber/polymer losing its wettability and adherence. It is common practice to treat fibers with substances that can react with the hydroxyl group, like alkali, in order to improve the interface between the fibers and matrix. therapy as well as isocyanate therapy. An approach that is frequently utilized with natural fibers is the alkali treatment. Using this technique, fibers are left in an alkali solution for a while, sometimes even heated. In order to improve the fiber's interlocking with the matrix, alkali aids in the removal of hemicellulose, lignin, and waxes from the fiber's surface [4]. This leaves the surface rough. Another efficient technique to enhance fiber/matrix interfacial bonding is isocyanate treatment. The hydroxyl group of cellulose is ready to react with the isocyanate active group (NCO). Prior research has employed

Examining the dimensional accuracy of AMC made with nylon-6 waste-based reinforced filament and FDM assisted investment casting

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Abstract:
In the last few years, managing nylon-6 trash from many societies—textiles, household goods, tires, carpets, military supplies, etc.—has become a major global issue.Regular recycling procedures for these materials are more expensive and miss important mechanical characteristics. In the current study, waste nylon-6 from the neighborhood plastics sector has been gathered and recovered using an extrusion procedure to provide feedstock filament for fused deposition modeling (FDM). It has proven successfully possible to create sacrificial designs for the investment casting process (ICP) using this alternatively created FDM filament. Investigating the melt flow index (MFI) of gathered nylon-6 waste that was matched with the commercial FDM filament through reinforcing was the first step in the process. LastlyFDM filament percentage has been developed using a single screw extruder and a composition of 60% nylon-6, 30% Al, and 30% Al2O3 (by weight). The FDM patterns that were produced were utilized in ICP to create aluminum matrix composites. (AMC). The impact of process factors (pattern volume, pattern density, and number of IC coatings) on the generated AMC's dimensional correctness was examined using Taguchi L9. In addition to offering a different strategy for the handling and repurposing of nylon-6 waste, the current study presented a novel way for creating AMC with customized qualities.

Introduction:
Nowadays, polymer, plastic, and their composites are used in a wide range of industrial items because of their exceptional strength, low cost, and light weight. Because of the chemical connections that make them resistant to natural processes of deterioration, plastics are robust and have a slow rate of decomposition [1]. In developing nations, a specific kind of plastic waste—nylon-6—produced between 7000 and 8000 metric tons annually [2]. The inability to decompose such vast amounts of waste makes recycling them a serious issue that the world has been dealing with for several decades. Studies have demonstrated the potential of plastic waste as a reinforcing agent in a range of mechanical and architectural applications [3-5]. There are four techniques for recycling nylon-6: re-extrusion, mechanical, chemical, and energy recovery [6]. The mechanical, chemical, and energy recovery methods have substantial operating and tooling costs and are not cost-effective when there is little plastic trash. As stated Out of the four processes, extrusion and palletization can be used as green recycling of waste plastic with "Zero Significant Adverse Environmental Impact," according to the Central Pollution Control Board (India) [7]. Nylon can be utilized as a matrix in the FDM filament production process because of its lower melting temperature, desired flexibility, and stiffness. By adding abrasive powder, it is possible to obtain the other crucial characteristics (such viscosity, strength, and modulus) needed for premium composite feedstock filaments for FDM [8]. Computer-aided design is used in FDM. automated additive manufacturing method that uses computer-aided design (CAD) to create parts that are

Impact of alkalization and fiber alignment on the mechanical and thermal properties of hemp and kenaf bast fiber composites.

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Abstract:
In the state that they were obtained, long, random hemp and kenaf fibers were utilized and alkalized with a 0.06 M NaOH solution.To create composites made of natural fibers, they were mixed with polyester resin and heated. To see how fiber alignment and alkalization affected the composites, measurements of their mechanical characteristics were made. There was a common pattern that showed alkalized and long fiber composites outperformed composites constructed from the fibers as received in terms of flexural strength and modulus. In comparison to alkalized long hemp-polyester composites, alkalized long kenaf–polyester composites have better mechanical qualities. Low work of fracture is correlated with both high flexural strength and modulus for hemp-polyester composites. The treated hemp and kenaf fibers' scanning electron microscopy micrographs demonstrated the lack of surface imperfections, which were seen on the untreated fibers. Following alkalization with 0.06 M NaOH, apparent density measurements on hemp and kenaf fibers did not reveal a statistically significant change. All of the composites' differential thermal analysis thermograms showed wide endothermic peaks, which are indicative of moisture content and poor mechanical qualities. The polyester matrix composites' dynamic mechanical thermal research revealed that the alkalized fiber composites have higher E0 levels are indicative of greater flexural moduli. It is less evident whether there is a relationship between fiber surface treatment and the work of fracture and tan d of composites.

Keywords: A. Polymer matrix composites; B. Mechanical properties; B. Thermal properties; Dynamic mechanical analysis; D. Scanning electron microscopy

Introduction:

While it has been extensively documented that polyester can be reinforced with cellulosic fibers, unsaturated polyester is a common thermoset utilized as a polymer matrix in composites.[1-3]. It is well known that fibers give the brittle and feeble matrix stiffness and strength. Research on composite materials is currently focused on substituting natural fibers for synthetic ones. The utilization of naturally occurring fibers that come from yearly renewable supplies as reinforcing fibers in thermoset and thermoplastic materials In terms of final disposal and raw material usage, matrix composites offer favorable environmental effects [4]. Over the past ten years, there has also Thermoplastics like polypropylene and polyethylene are common matrix materials used in natural fiber composites. like polyester, which is a thermoset. Hemp, kenaf, and numerous other natural plant fibers have also been extensively utilized in natural fibers have sparked a resurgence of attention as a glass fiber alternative due to their lower density, lower cost, and ease of recycling.Both hemp (Cannabis sativa) and kenaf (Hibiscus cannabinus L.), which are bast fiber

Effects of processing method and angle of fiber orientation on the mechanical characteristics of E-glass fiber reinforced wood/PVC composites

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Abstract:
This investigation involved adding E-glass fibers (GF) to wood/poly(vinyl chloride) (WPVC) composites in a variety of fiber shapes, loadings, and orientation angles. The GF reinforced WPVC composites were produced via twin-screw extrusion or compression molding. procedure, and after that, the mechanical characteristics of the composites made using these two methods were contrasted. According to the experimental findings, twin-screw extrusion was not as efficient as compression in producing GF-reinforced WPVC composites. By using the compression process, the GF/WPVC composite had a higher specific density. It was discovered that the glass fiber's orientation angle had a more noticeable impact.on the GF/WPVC composites' impact characteristics. By producing composite products with a fiber orientation angle of 0° using compression molding, the maximal mechanical characteristics of GF/WPVC composites could be achieved.
Keywords: Wood-fiber Composite Natural fiber composite Processing Glass fiber

Introduction:

At first, wood fibers were employed to cut costs and reduce and dispose of vast amounts of waste natural fiber resources. However, they are presently primarily utilized as inexpensive and low-resistance compounds in polymers.density-related goods. Xu et al. (2008) claimed that if the wood fibers and polymers are appropriately combined, then mechanical properties for structural engineering applications can be improved. Initially utilized for decking and non-structural building applications (external window and door profiles), wood polymer composites (WPC) have now undergone substantial development for a broader range of uses, including buildings and structures, automobiles, and more.and outdoor products, even though it's still unclear how strong they are. Several have been observedmethods to improve the structural and engineering properties of the WPC products, these including addition of synthetic fiber, metal inserts and selection of appropriate processing techniques. Rizvi and Semeralul (2008) introduced 5% of glass fiber into wood/high-density polyethylene (HDPE) composites and found a considerable improvement in tensile properties of the wood-HDPE composites. Mishra et al. (2003) investigated the mechanical properties of polyester hybrid composites reinforced with glass and biofiber. They discovered that the pineapple leaf had a tiny quantity of glass fiber added to it.fiber and sisal fiber reinforced polyester demonstrated a favorable hybrid effect, enhancing the composites' mechanical qualities. By adding glass fiber and maleic anhydride, Thwe and Liao (2003) enhanced the mechanical and structural characteristics of the short bamboo reinforced popypropylene composites in compression molding. MAPP, or polypropylene, as a compatibilizer. They discovered that adding 20% of glass fiber by mass could enhance the mechanical qualities by up to 25%. The addition of short and long glass fibers into wood/PVC composites and discovered that while the insertion of long glass fiber greatly boosted the impact strength of the composites without compromising their flexural

Impact of physical adhesion on the mechanical properties of thermoplastic composites reinforced with bamboo fibers

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Abstract:
Using the molecular-kinetic theory of wetting, systematic experimental results defining the dynamic wetting properties of bamboo fibers were analyzed. The surface of bamboo fiber appears to be a well-defined system for wetting analysis, according to the results. The acid-base theory was used to compute the surface free energy components. The theoretical work of adhesion, spreading coefficient, wetting tension, and interfacial energy were then computed using these data. We studied the wetting behavior of a variety of thermoplastic matrices, including polypropylene, polyvinylidene-fluoride, polyethylene-terephthalate, and polypropylene grafted with maleic anhydride. XPS was used to identify the chemical components of the surface. Additionally, single fiber pull-out and transverse 3-point bending tests were carried out. The effect of adhesion on the mechanical strength of thermoplastic composites reinforced with bamboo was investigated using an integrated physical-chemical-mechanical approach. The results demonstrated that, in comparison to the other thermoplastic matrices used in this study, an increase in physical adhesion can account for the improved interfacial and longitudinal strength in bamboo polyvinylidene-fluoride (PVDF) composites. When the surface energy components of PVDF and bamboo fibers were matched, the physical adhesion improved.

Keywords: Interface Wetting Fibre-matrix bond Photoelectron spectroscopy (XPS) Bamboo Natural fibre composites Molecular kinetic theory Composites

Introduction:

The properties of the composite are significantly impacted by the contact between the matrix and the reinforcing fiber because of the efficiency of load distribution and stress transmission at this interface.is decided by how firmly the components adhere to one another.Because of chemical bonding at the interface and low resin viscosity, natural fiber composites with a thermoset matrix have previously demonstrated remarkable mechanical qualities, allowing for good resin impregnation of the fibers [1]. However, because they are neither recyclable nor biodegradable, issues with their end-of-life environmental impact occur. One strategy that has less of an impact on the environment is the use of thermoplastics as the matrix for composites made of natural fibers. However, because most natural fibers have poor interfacial interactions with thermoplastic matrices that are normally hydrophobic, their potential as reinforcing agents is diminished by their hydrophilic character. Other Because of problems with thermoplastic matrices—namely, the absence of covalent bonding and the high viscosity of molten thermoplastics, which slows down wetting—maximizing physical interactions is essential to producing superior composites. The surface energy of a fiber and a matrix in a composite can be linked to the interfacial strength of the material when physical interactions predominate over chemical interactions.specified system. Furthermore, one may anticipate the impact of mechanical interlocking. Since the contact angle quantifies molecular interactions between solid and liquid, it sheds light on solids' surface energies. Surface energy component theories, which are predicated on the theoretical Young contact angle and assume that an equilibrium state can be reached, require well-described wetting

Creation and characteristics of composites reinforced with banana fibers based on mixes of high density polyethylene (HDPE) and nylon-6

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Abstract:
Two-step extrusion was used to create banana fiber (BaF)-filled composites based on mixes of high density polyethylene (HDPE) and nylon-6. Maleic anhydride grafted polyethylene (PE-g-MA) and styrene/ethylene–butylene/styrene triblock polymer (SEBS-g-MA) were utilized to improve the interfacial bonding between BaF and the resins and impact performance. The composites' mechanical, morphological, thermal stability, water absorption, and crystallization/melting characteristics were all examined. Greater strengths and moduli were observed for HDPE/Nylon-6 based composites in the presence of SEBS-g-MA as compared to equivalent HDPE based composites. While impact toughness gradually decreased, moduli and flexural strength of the final composites improved continuously at a given weight ratio of PEg-MA to BaF when BaF loading was increased to 48.2 wt%. At a BaF loading of 29.3 weight percent, the predicted tensile modulus for three-dimensional random fiber orientation by the Hones–Paul model corresponded well with experimental data.

Keywords: Nylon-6 HDPE Banana fibers Composites Compatibilization

Introduction:
In recent decades, bio-fiber-reinforced plastic composites have drawn more attention due to increased ecological concerns, environmental awareness, and new laws. Compared to conventional glass fiber or inorganic mineral-filled materials, the composites are lighter, more affordable, and offer numerous other benefits. weight, suitability for recycling, and environmental friendliness. The thermoplastic matrix employed in the composites is primarily restricted to low-melting-temperature commodity thermoplastic resins, such as polyethylene (PE) and polypropylene (PP), because wood and other biofibers readily degrade at temperatures above 200 C (Lee et al., 2007). However, some structural uses of the materials are limited by the intrinsically poor thermomechanical and creep properties of the polyolefin matrix. Recently, efforts have been made to use high-performance thermoplastics as matrix materials in an attempt to address the aforementioned shortcomings. First, a low temperature compounding (LTC) method produced cellulose fiber-reinforced engineering polymers such nylon-6, poly(butylene terephthalate), and ethylene-carbon monoxide (Caulfield et al., 2001) with success using the method pioneered by Jacobson et al. (2001). It was demonstrated that Nylon-6 composites reinforced with cellulose fibers were roughly twice as stiff and robust as polypropylene filled with wood flour. The composites also possessed superior Izod toughness, both notched and unnotched.less than composites made of wood flour and PP (Jacobson et al., 2001). These Nylon-6/cellulose fiber composites' mechanical characteristics often ranged from those of comparable wollastonite- and

Impact of glass fiber reinforcement and wood composition and content on the wear behavior of wood/PVC composites

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Abstract:

For flooring applications, engineers need to understand how to design and synthesize wood/polymer composites (WPCs) with high wear resistance. This can be achieved through the use of experimental data and scientific insights into the wear qualities of WPCs. Three distinct wood flour varieties were used in this work: Xylia kerrii Craib & Hutch., Hevea brasiliensis Linn., and Mangifera indica Linn.then added to poly(vinyl chloride) (PVC) at a set concentration (10 phr) of glass fiber that has been chopped into E-strands. After that, the wear, mechanical, and physical characteristics were evaluated in relation to the sliding distance and wood content, specifically measuring the wear rate. According to the experimental findings, adding wood flour enhanced the flexural modulus and strength up to 40 phr; the flexural characteristics declined at higher concentrations. There was no change in hardness when wood flour was added. It was discovered that adding E-glass fiber to WPVC composites improved their wear and mechanical characteristics. Xylia Hevea brasiliensis Linn. wood showed the lowest specific wear rate for glass fiber reinforced WPVC composites, while Kerrii Craib & Hutch. wood had the lowest specific wear rate for non-reinforced WPVC composites. In all circumstances, the particular wear rate increases with the length of the sliding distance.

Keywords: A. Glass fibers B. Mechanical properties A. Natural fiber composites B. Wear

Introduction:

Initially, wood flour was employed in both structural and non-structural applications to reduce enormous volumes of natural fiber wastes and to save costs. Lately, wood flours have been employed to provide wood/polymer composite (WPC) products with reduced density and improved dimension stability when utilized as reinforcement in polymeric materials. The development of wood/polymer composites (WPCs) has made it possible for them to be used in marine applications, automotive, gardening, and outdoor items, in addition to building and construction [1]. Nevertheless, their mechanical qualities remain inferior to those of genuine woods. Numerous studies on WPC have been published; the majority of these have examined the material's mechanical, thermal, and morphological characteristics as well as how the addition of the cross-sectional design of shaping dies [9–11], the chemical and physical treatments of wood surfaces [12,13], the kind of thermoplastics employed [11], and the processing methods and circumstances [7, 8]. In order to compete with real woods, several published works [2–13] have attempted to enhance the mechanical properties of WPC in structural applications.

urea-and triazine-based algaecides' molecular characteristics, mechanical attributes, and anti-algal effects in PVC and wood/PVC composites

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Abstract:
Following the addition of commercial algaecides of various kinds and quantities, the material behaviors and anti-algal performances of PVC and wood PVC composites (WPVCs) were investigated. There was interest in three distinct wood species that are frequently found in tropical regions: Mangifera indica Linn., Hevea brasiliensis Muell., and Xylia kerrii Craib and Hutch. Terbutryn (N2) and Isoproturon (3-(4-isopropylphenyl)-1,1-dimethylurea), an algaecide based on urea The anti-algal compounds in this investigation were -tert-butyl-N4-ethyl-6-methylthio-1,3,5-triazine-2,4-diamine, a triazine-based algaecide; concentrations in the specimens ranged from 0 to 1500 ppm. The materials' mechanical, chemical, and surface qualities as well as their color were also observed. The findings showed that adding isoproturon tends to significantly alter the materials' surface color. especially for PVC, which had the highest DE value, but not for Terbutryn's addition. The initial surface color of the materials was discovered to be influenced by the varieties of wood. Evidence from FT-IR, DSC, and contact angle measurements showed revealed isoproturon could cause PVC breakdown and exhibited a potent molecular interaction with PVC. The addition of wood had an effect on the mechanical qualities of PVC and WPVC, whereas the addition of algaecide had no effect. The findings of the growth inhibition zone and chlorophyll-a content in Chlorella vulgaris TISTR 8580 indicated that, at a recommended dosage of 1000 ppm, Terbutryn performed better against algae than Isoproturon, while Isoproturon at 1500 ppm might function as a useful coupling agent in WPVC composites.

Keywords: A. Polymer–matrix composites (PMCs) B. Environmental degradation D. Surface analysis E. Thermoplastic resin

Introduction:

Algae can build biofilms that induce biofouling on a material surface in environments with high humidity and water. The presence of primary colonizing algae adhered to the surface promotes the adhesion of other microorganisms or species, resulting in the formation of a heterogeneous system of microorganisms, and causes the algal cells to multiply. bigger, more intricate biofilm communities and macro-fouling attachment [1]. The growth of biofilms on a material surface significantly amplifies bio-corrosion, leading to surface and bulk property deterioration. which may subsequently result in health epidemics and financial losses [2, 3]. The attachment of microorganism cells to a material surface is influenced by various factors: for examples include material polarity and surface energy; formulations and additives; molecular weight; crystallinity; the use of biocides or disinfectants; and environmental factors such the kind of microorganisms present, pH, temperature, moisture content, and UV light [4–10].The most popular wood polymer composite is wood polyvinyl chloride composite, or WPVC. Due to its increased use in outdoor applications, especially in tropical areas,resilience to bacterial and solvent attacks, resilience to UV exposure, high service temperature, and low moisture absorption of PVC itself [11]. Despite the

5G Security: A concern of Threats and its Solutions

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Abstract

5G will provide broadband access everywhere, entertain higher user mobility, and enable connectivity of massive number of devices (e.g. Internet of Things (IoT)) in an ultrareliable and affordable way. The main technological enablers such as cloud computing, Software Defined Networking (SDN) and Network Function Virtualization (NFV) are maturing towards their use in 5G. However, there are pressing security challenges in these technologies besides the growing concerns for user privacy. In this paper, we provide an overview of the security challenges in these technologies and the issues of privacy in 5G. Furthermore, we present security solutions to these challenges and future directions for secure 5G systems.

Introduction:

The vision of 5G wireless networks lies in providing very high data rates and higher coverage through dense base station deployment with increased capacity, significantly better Quality of Service (QoS), and extremely low latency [1]. To provide the necessary services envisioned by 5G, novel networking, service deployment, storage and processing technologies will be required. Cloud computing provides an efficient way for operators to maintain data, services and applications without owning the infrastructure for these purposes. Therefore, mobile clouds using the same concepts will bring technologically distinct systems into a single domain on which multiple services can be deployed to achieve a higher degree of flexibility and availability with less Capital Expenditures (CapEx) and Operational Expenses (OpEx).

Security System in Wireless Network: A review

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Abstract

Security is the most common word use by the people today very frequently. The word security shows the status or the excellence of being safe and sound. When people say that any particular object, software or system is secure means it is gratis from any vulnerability. This means the system is secured from people. This attack may be happen deliberately or accidentally. The security in case of network or data, in it means protection of our network or data from unauthorized people and permits those people who are authorized for accessing the network. Now a day, number of software tools is available. To use these tools no prior technical knowledge of computer field is required. Therefore, attackers with less or no knowledge about technology can attack the target easily with the help of these tools. When we use wireless network, security of network is often ignored or not considered seriously. The nature of wireless networks is the main component which makes it simple to compromise. This is the reason that underlines the importance of security in wireless network.

INTRODUCTION

The human life is completely change by the evolution of the wireless network. People can remain in contact with each other at any time due to the emergence of wireless network. It is possible to be in contact with each other via email, conference call etc. from their smart phones. Even attendance system in the organization is implemented using Radio Frequency Identification (RFID) cards. Now a day, use of portable devices like smart phones, tablets etc. for accessing internet from public places like airport, hotels, cafes etc. This is possible only due to wireless local area networks. Use of this technology boosting the size, productivity and profit of all types of businesses.

Design of Fuzzy and Adaptive PI Controllers for Isolated Microgrid Frequency

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Abstract: Every day, more and more renewable energy sources and electric cars are being included into the electrical system. Building a green and sustainable power system is the goal underlying the development of electric vehicles and renewable energy sources. Because they either have reduced system inertia or none at all, renewable energy sources are unable to adapt their systems to changes in load. Electric vehicles' battery storage system serves as the first line of defense against load and frequency changes, helping to stabilize the system. Electric vehicles are a part of the microgrid environment since active power is inversely related to system frequency.

Keywords: Adaptive droop control, electric vehicles, frequency regulation, fuzzy PI control, GA optimization technique, renewable energy sources, reheat turbine system.

INTRODUCTION

Of all the difficulties facing the modern world, power is the most significant. The world's attention is focused on regulating power usage and diversifying its manufacturing process due to the ongoing depletion of fossil fuels, rising energy demand, and increased pollution. Resolving the power problem can contribute to the improvement of infrastructure development and the eradication of poverty. The concept of a microgrid (MG) was born out of the growth of renewable energy sources (RESs) and the addition of controllable loads [1]. Numerous energy storage methods are used to address the impact of the aforementioned issues, including the frequency fluctuations in MG and the power mismatch between generation and consumption [8]. In order to turn down the generators at night, the ESS method was first implemented in New York City in the late 19th century [9]. ESS is currently the most important part of the MG since it serves as a backup reservoir or buffer zone to react quickly in the event of a load variation and is a clever method to overcome potential power imbalance difficulties [10]. A synchronous generator is used in conventional power systems to generate the nominal voltage and frequency of the system. Droop control, voltage compensation devices, and active and reactive power all contribute to system stability.Two operational modes of the microgrid were designed by the researchers: (1) grid-connected mode and (2) isolated mode [5]. The grid supports the preceding mode in order to compensate for variations in load.

An Inventive Grid-Connected Hybrid PV/Wind/Fuel-Cell System Control Approach Using Converter less Solar PV and Battery Energy Storage

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Abstract: The proposed work focuses on the modeling, control, energy management, and system operation of a hybrid grid-connected system that integrates fuel cells and electrolyzers with wind, photovoltaic, and battery energy storage systems (BESS). It has been suggested to use a hybrid PV-Wind-FC system with an electrolyzer made out of BESS and the fewest converters and control loops possible. The suggested hybrid system, which does away with the PV converter, offers an affordable way to include PV into a hybrid system. This covers the controller design for grid-connected hybrid systems that have an FC with an electrolyzer as a tertiary source, a BESS as a secondary source, and a distributed generator that is renewable (wind and solar power) as a primary source.

Keywords: Grid-connected system, energy management system, battery energy storage system, electrolyzer, fuel cell, doubly fed induction motor, maximum power point tracking.

INTRODUCTION

Life has become much easier and more uncomplicated with the rise in domestic appliances designed to perform basic tasks.On the other hand, as more household appliances become electric, the demand for electricity is rising. The demand for electricity is being met by a constant increase in power generation.To meet the demand, more renewable and non-renewable generation are added to the electricity grid. The power flow architecture becomes more complicated in numerous ways when considering the many kinds of conventional and non-conventional sources.Governments are working to integrate renewable power into the national grid in order to supply the entire demand for electricity, as environmental concerns have grown over the past few decades. Because of the way that wind turbines regulate their output, they are turning out to be incredibly dependable producers of electricity. Offshore topology wind turbines are currently a prominent study area due to the development of new forms of wind turbine generation architecture. The adjustment of wind turbine speed in Doubly Fed Induction Generators (DFIGs) is a highly effective method of producing electricity. By adjusting the rotor's speed in response to wind speed, it is possible to achieve maximum power point tracking (MPPT) of the power produced by the turbine [6]. Researchers have developed a number of control schemes in the last few decades to increase the efficiency of the DFIG power production turbines [7], [8], [9], [10], and [11].

A new travel review dataset classification approach based on entertainment

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Abstract
Recommender systems are evolving as an essential part of every industry with no exception to travel and tourism segment. Considering the exponential increase in social media usage and huge volume of data being generated through this channel, it can be considered as a vital source of input data for modern recommender systems. This in turn resulted in the need of efficient and effective mechanisms for contextualized information retrieval. Traditional recommender systems adopt collaborative filtering techniques to deal with social context. However they turn out to be computational intensive and thereby less scalable with internet and social media as input channel. A possible solution is to adopt clustering techniques to limit the data to be considered for recommendation process. In tourism context, based on social media interactions like reviews, forums, blogs, feedbacks, etc. travelers can be clustered to form different interest groups. This experimental analysis aims at comparing key clustering algorithms with the aim of finding an optimal option that can be adopted in tourism domain by applying social media datasets from travel and tourism context

Keywords: Recommender Systems, Clustering Algorithms, Travel and Tourism, Cluster Evaluation

I INTRODUCTION

In this section presents introduction of this research work. In end user perspective, travel and tourism is mostly explorative in nature and repetitive travels to same locations are minimal. So, travelers have to take decisions regarding their destinations and associated facilities to be consumed without adequate prior or personal knowledge. The best option available is to leverage social media and internet, but the amount of time required to extract relevant information is too high. Tourism recommenders are the best solutions in this scenario. Recommender systems helps in terms of automated filtering, processing, personalization and contextualization of the huge volume of data that is available and growing on a daily basis on the internet and the social media. In this paper presents section 2 of this paper explains the detail on the related works. In section 3 presents the materials and methods adopted and section 4 presents the details of the experiments and discussions. Finally section 5 concludes the paper by sharing our inferences and future plans.

A RAPID AND SUCCESSFUL CRYPTOSYSTEM FOR NETWORKS WITH LIMITED RESOURCES

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Abstract :A paradigm shift is taking place from wired networks to wireless/infrastructure less Ad-Hoc networks, such as Mobile Ad-Hoc Networks (MANET) and Wireless Sensor Networks (WSN). Their computational power is low and bandwidth is limited. Because of their unique characteristics data security becomes a major issue in these resource constrained networks. Elliptic Curve Cryptography (ECC) may provide a solution for the security of Ad-Hoc networks since they need significantly smaller parameters in comparison to cryptosystem such as RSA, DSA etc., therefore involving lightweight computations. In this paper we propose a new cryptosystem based on ECC, which uses non –singular matrix multiplication for point mapping along with Elliptic curve analog of Massey-Omura method for encryption and decryption. Our method being simple, fast and efficient is suitable for resource constrained networks such as MANET and WSN.

Keywords: Public key cryptography, Elliptic Curve Cryptography, MANET, Non-Singular Matrix, Massey Omura method.

1. Introduction:

The use of mobile and wireless devices is increasing day by day. Now a day there is a trend of moving from wired networks to wireless networks, since they are easy to install and need no centralized control system. These networks are constructed on the fly and form a system of wireless mobile nodes that dynamically self-organize themselves in arbitrary and temporary network topologies [Levent and Nitu, (2007)]. These networks are resource constrained having limited bandwidth and can't support heavy computations. Data security becomes vulnerable, in these networks due to their particular nature and structure, and therefore securing data or messages is a challenging task in such kind of environments. Public key cryptography offers a solution to secure data in Ad-Hoc networks. But public key cryptosystems involve heavy computations so they are not suitable for these networks where processing power is low and bandwidth is limited. Elliptic Curve Cryptography (ECC) may be a better option for data/message security in resource constrained networks, since they use smaller size keys in comparison to popular Public Key Cryptosystems (PKC) available, therefore putting less pressure on the resources. The use of elliptic curves in public key cryptography was independently proposed by Koblitz, (1987) and Miller, (1986). ECC has attracted attention in recent years due to its ability to use smaller key sizes [Singh and Singh, (2015)], as compared to RSA, but at the same time providing equivalent level of security. It gives better security per bit as compared to RSA. In ECC a 160 bits key, provides the same security as RSA 1024 bits key, reducing the computational power significantly. ECC has been considered suitable for applications such as smart cards, mobile commerce, Ad-Hoc networks etc., due to its less storage requirements and computational cost. The advantage of elliptic curve cryptosystems is the absence of sub exponential time algorithms that could find discrete logarithms in these groups, for attack. The elliptic curve cryptosystems may be regarded as more secure because the analog of Elliptic curve discrete log problem (ECDLP) is at least as hard

Modeling a Computer System Stochastically with Software Redundancy and Hardware Repair Priority

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Abstract
The idea of this paper is to determine reliability and economic measures of a computer system by providing software component as spare in cold standby and priority to hardware repair over software upgradation. The hardware and software may fail independently from normal mode. There is a single server who is called immediately to conduct hardware repair and software up-gradation as and when required. The repair and up-gradation activities performed by the server are perfect. The random variables associated with time to failure, hardware repair and software up-gradation are statistically independent. The time to hardware and software failures follows negative exponential distribution, whereas the distributions of hardware repair and software upgradation times are taken as arbitrary with different probability density functions. The expressions for various reliability and economic measures are derived in steady state using semi-Markov process and regenerative point technique. The trends of some important measures of system effectiveness have been observed for arbitrary values of the parameters and costs. The profit of the present model has also been compared with that of the model Munday and Malik [2015].

Keywords: Stochastic Modelling, Computer System, Software Redundancy, Priority to Hardware Repair and
Reliability Measures.

1. Introduction

The stochastic modelling of a computer system has been done in the most of the papers by providing component wise redundancy in cold standby with the concept of priority in repair disciplines. Welke et al. [1995] have discussed reliability modeling of a hardware/software system. Also, Yadavalli et al. [2004] and Kumar et al. [2012] analyzed repairable system models using unit wise redundancy. But the concept of priority to hardware repair over software up-gradation has not been studied by the researchers so far in case of computer systems with component wise redundancy. However, Anand and Malik [2012] have tried to obtain reliability measures of a computer system with unit wise redundancy in cold standby and priority to hardware repair activities over software replacement. Barak and Malik [2014] and Kumar et al. [2015] analyzed system models with cold standby redundancy under different failures and repair policies with the concept of priority. Also, Munday and Malik [2015] tried to establish a stochastic model for a computer system by providing software redundancy in cold standby. The main focus of the present paper on to determine reliability measures of a computer system by introducing software redundancy in cold standby with priority to hardware repair over software up-gradation. For this purpose, a stochastic model can be developed for a computer system by providing software redundancy. The hardware and software may fail independently from normal mode. There is a single server who is called immediately to conduct hardware repair and software up-gradation as and when required. The repair and upgradation activities

Morocco's system of career and educational guidance: Chatbot E-Orientation

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ABSTRACT

Currently, chatbots are employed in many different online applications; most frequently, they are used for personal assistant or shopping. Numerous potential advantages are provided by these chatbots, such as personalization and round-the-clock instant accessibility. The field of education may benefit from these chatbots' advantageous features. In natural language, they represent a novel kind of human-machine interface. However, there hasn't been much focus on chatbots in academia—for instance, when it comes to helping with study, course, and exam organization. Since the scientific community is still developing this area of study, in our article we establish a chatbot in the field of educational and professional guidance based on John Holland's theory and the RIASEC questionnaire to identify the predominant personality type of graduate and undergraduate students who wish to enter the workforce.

Keywords: Chatbot; Educational and professional guidance; John Holland theory; natural language , human-machine interface.

INTRODUCTION

A chatbot, also known as a chatterbot, is a virtual assistant that can converse with users through software and respond to a predetermined amount of questions with accurate responses. Numerous chatbots for industrial and research solutions have been developed by large companies; some of the most well-known ones are IBM Watson, Facebook M, Microsoft Cortana, Apple Siri, and Facebook M. These are but a handful of the most widely used systems. Numerous lesser-known chatbots exist that are more pertinent to research and its uses; some of these will be covered in the upcoming chapter .

The creation of efficient chatbots is one of the most challenging research projects; in fact, simulating human conversations is a very challenging task that involves issues pertaining to the Natural Language Processing (NLP) research field . It is feasible to comprehend the user's writing and requests because NLP algorithms and techniques are used. Generally speaking, this task is the core of the system, but there are a few issues: not all user requests can be mapped, and current chatbots perform poorly because users' thoughts can change during a conversation . When developing a chatbot, a

Decentralized Management of Intelligent Grid with Static and Variable Loads

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Abstract: Plug-in hybrid electric vehicles (PHEVs) cause frequency disturbances in the power system since they are intermittent loads. The generation and demand of power must be balanced by the system. But in regional smart grid systems that are powered by mobile loads and renewable energy sources, the dynamics of the system are closely linked to the power transmission via tie line connections. This results in an extremely slow process for frequency stability and control. In this research, the penetration of renewable energy into power system areas is decoupled using an overlapping decomposition technique of large-scale system control. The frequency is then quickly maintained by a decentralized controller. The findings of the Micro-hydro Simulation show that a quick frequency control procedure can be used to adjust the system when the input power from the wind turbine and the load from PHEVs varies.

Keywords: Decentralized control, large-scale control, smart grids, plug-in hybrid electrical vehicles.

INTRODUCTION

It is not feasible or cost-effective to manage large-scale systems, such electric power plants, using centralized control [1], [2]. Furthermore, the growth of renewable energy sources and the addition of big, stochastic loads like plug-in hybrid electric vehicles (PHEVs) [3], [4], introduce sporadic generation and loads that complicate the control process [5]. Variations in PHEV load in various locations are caused by a number of variables, including erratic customer behavior and various charging profiles and levels [6], [7]. Therefore, the generation and operation of the power supply will face issues as the number of PHEVs increases. The unpredictable nature of PHEV loads is depicted in Figure 1. In highly interconnected renewable energy systems with unpredictable loads, frequency stability necessitates a quick control procedure, which can be accomplished by disconnecting highly dependent components. This method represents a large-scale system as a collection of naturally occurring, interrelated subsystems that have split apart or broken down [1]. Overlapping decomposition technique is utilized in decentralized controllers and accounts for local and shared subsystem state parameters when subsystem interconnection has considerable external influence on the system's parameters [1],[2],[8],[9]. Large thermal power generating units with slow dynamics were previously employed in traditional power systems using this technology [10]. But new technologies like distributed generation, quick dynamic storage units, renewable energy power plants (like solar and wind), and connecting stochastic loads (like plug-in hybrid electric vehicles) are making a difference [11].

Puerto Rico's Sustainable Energy System's Role in the Caribbean as a Whole with Special Emphasis on the Benefits of Offshore Floating Systems

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Abstract: The scaling up of renewable energy (RE) capacity is lagging in the Caribbean and Puerto Rico. Pathways for Puerto Rico and the Caribbean to transition to a 100% renewable energy system by 2050 are examined for every energy source. Islands frequently have a limited amount of land accessible, therefore several scenarios—such as offshore floating photovoltaics (PV)—are taken into account. The results for Puerto Rico show that there are significant advantages to achieving 100% renewable energy. The levelized cost of energy (LCOE) can be lowered from over 100 €/MW in 2020 to 47.4 €/MW in 2050, and the levelized cost of energy, which includes all energy sectors, can drop from 79 to 53 €/MWh. 81% of the world's power comes from photovoltaics (PV), with 33.4 GW of installed capacity—17.5 GW of which are offshore floating PV—due to area constraints.

Keywords: Battery energy storage system (BESS), distributed energy resources (DER), grid outage, microgrid, renewable energy sources (RES), uninterruptible power supply (UPS), voltage source (VS).

INTRODUCTION

The key to mitigating climate change, promoting sustainable development, and combating several energy challenges is the transition to renewable energy (RE) [1]. This shift entails the gradual phase-out of fossil fuels in order to reduce CO2 emissions and prevent the negative health effects and mortality linked to air pollution [2]. Because RE-based solutions are now affordable, they lower the total cost of energy supply as well as the levelized cost of electricity (LCOE) [3]. Islands are the focus of the energy transition because they are more vulnerable to weather extremes and climate change-induced increasing sea levels, which pose a danger to many islands overall [1]. Energy crises cause energy prices to rise, which is correlated with energy poverty and lowers economic prosperity. There aren't many studies available that address the energy transition choices for the Caribbean, and the ones that are accessible are mostly focused on the power sector and don't cover the complete energy system [4]. Nonetheless, studies have shown that boosting the proportion of renewable energy (RE), particularly solar photovoltaics (PV), lowers the cost of the energy system [5].

Thirteen years after the first relevant research for an island discovered by Meschede et al., the first 100% RE system analysis for any Caribbean island was published in 2017 for Montserrat [6].

AC Microgrid Protection Plans: An Extensive Analysis

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Abstract: In the last few years, the infrastructure of the power grid has changed from a centralized to a distributed one using renewable energy sources. The growing need for eco-friendly energy solutions means that this trend is probably going to continue. Microgrids come in several forms, with distributed, non-distributed, and sustainable energy sources. As a result, microgrids (MGs), which offer dependable and sustainable electricity locally, are growing in popularity. In order to handle the large rise in electricity demand, storage, and transmission concerns, microgrids can be run both islanded and grid-connected. The significance of power electronics in microgrids has grown with the adoption of renewable energy sources. Microgrids have numerous advantages, but they also have many drawbacks, particularly in terms of electricity delivery.

Keywords: Ac microgrid, protection schemes, distributed generation, renewable energy, greenhouse gas emission.

INTRODUCTION

The complexity and difficulties of power systems have made protective system plans more and more important. Miscommunication and defective protective relays are major contributors to blackouts and cascading occurrences [1]. Inadequate tie protection systems account for 27% of bulk power system disruptions, according to a report published by the International Council on Large Electric Systems (CIGRE) [2].In order to avoid blackouts, cascade failures, and disruptions in the power supply, protection systems isolate the defective area from the healthy areas. Protective relays must be coordinated and maintained properly to guarantee dependability and lower the chance of electrical disruptions. Tie protection systems must thus be routinely examined and maintained in order to guarantee peak performance and avert extensive power outages.

An interconnected collection of Distributed Energy Resources (DERs) with distinct electrical boundaries is referred to as a microgrid in grid operations. Depending on how connected they are to the grid, they can function as islanded or grid-connected. The use of microgrids has grown dramatically in the last several years. Based on a report by Navigant Research, the worldwide microgrid industry is predicted to reach $40 billion by 2028 [3]. Modern microgrids offer electricity security, efficiency, and dependability in addition to lowering carbon emissions and enhancing power quality. They do, however, also present a number of technological difficulties that will likely hinder their future broad implementation. Investigating advanced and cutting-edge control and protection systems for microgrids is desperately needed.

Creating a Tailored Technology Surveillance and Competitive Intelligence System for SMEs

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ABSTRACT

The process of making strategic decisions is intricate and necessitates accurate and current information. Thus, having tools that make information management easier is essential. The fields of competitive intelligence (CI) and technology surveillance (TS) both aim to gather precise and current data. Although there is no denying that the internet is the biggest and most significant source of information available, its disarray and destruction call for management tools. This work presents a model for TS and CI using Web Mining techniques, such as the Advanced Cluster Vector Page Ranking (ACVPR) algorithm, which is a machine learning-based web page ranking algorithm.

Keywords: Web mining, competitive intelligence and technology surveillance, advanced cluster vector page ranking.

INTRODUCTION

The value that businesses placed on information has changed as a result of market globalization and the advent of the digital age, and it is now more strategic than ever. This means that fields like competitive intelligence (CI) and technological surveillance (TS) are becoming indispensable for developing new goods and services, defining marketing strategies, boosting internal operations, and providing better customer service, among other things.. Numerous TS techniques fall into the following classes: expert opinion and trend analysis, intelligence and surveillance techniques, statistical techniques, modeling and simulation techniques, and scenario modeling.CI is a discipline that is essential to the TS because it manages the methodical and ethical process of gathering, analyzing, interpreting, and disseminating data about the competitive environment in which businesses operate. There are three steps: gathering information, extracting information, and contextualizing the information. Three aspects are highlighted by the goals of using a CI information system: enhancing the company's competitiveness, predicting the environment's evolution with a high degree of confidence, and offering strong support for the strategic decision-making process .Web mining (WM) is a technique for information retrieval that enables the processing and acquisition of valuable data from online documents and web pages. It can support the execution of TS and CI processes, aiding in one of their primary phases—the gathering and searching of data for subsequent analysis and treatment.In essence, the WM algorithms find and extract information from Web-based documents and resources by using data mining is categorized into three groups:

Effectively handling and recovering data with combiners in the Map Reduce architecture

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Abstract
Consider any data structure, an Array for instance and declare the size of an Array either using static approach or dynamic approach. This cannot be a generic solution for large text files as this involves in huge memory allocations for the data structure. Even this can be a difficult procedure as the data size increases, processing the data will be time consuming process. Existing solutions such as lists and even heap will process the data effectively for large text files even to a certain boundary level (depends on the ram constraint). Addressing these huge volumes of data, the solution will not work in a single node and it has to spread across the cluster (storing data on the disk) .Hadoop will address all these big data problems using map reduce technique, as processing will be done in parallel manner. Map reduce is a functional programming model which has two functions map and reduce and will perform distributed parallel processing. In order to make the retrieval much faster, introducing the concept of implementing combiners between mapper and reducer. Implement a combiner function after the mapper function as the mapper generates output. The combined data that is performed by the combiners will be sent to the shuffle and sort functionality. And then from there it sends to the reduce function for obtaining the final output. The time taken to retrieve the data after processing by map reduce without using combiners will be more when compared with the map reduce processing using combiners.

***Keywords*:** Map Reduce; Cluster; HDFS; Yarn; Combiners; Hadoop

1. Introduction

Over the past five years, Google have implemented hundreds of special-purpose computations for processing massive amounts of raw data, such as documents, request logs, etc., and such computations are conceptually straightforward. However, the input data is usually large and the computations have to be distributed across thousands of machines in order to finish in a reasonable period of time. The main issues to be focused on how to perform massive amount of computation and distribution of the data in simplified manner. So, a new abstraction has been designed that allows to express the simple computations but hiding the messy details of parallelization, fault-tolerance, data distribution and load balancing in a library. The new abstraction is being inspired by the map and reduces primitives present in Lisp. Most of computations involved are applying a map operation to each logical "record" in order to compute a set of intermediate key/value pairs, and then applying a reduce operation to all the values that shared the same key, in order to combine the data appropriately[1][5][7]. Storing and processing huge volumes of data according to the requirement became one of the major challenges in the real world. Hadoop is one of the solutions to the big data problems as the data is completely stored in files and the implementation of these Hadoop concepts will be done efficiently by the combination of HDFS, Map Reduce, Yarn where HDFS supports distributed parallel processing using map reduce and Yarn supports resource management [2]. And the major problem is if we want to process these

Artificial Intelligence in Medicine

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Abstract- Artificial intelligence (AI) is the science of creating intelligent computer programs. The aim of AI is to help doctors in clinical diagnosis and treatment and to reduce the rate of medical error. The main AI methods used extensively are expert systems (ESs), fuzzy logic, genetic algorithm, and artificial neural networks (ANNs). ESs make inferences with patient data in cause and effect relationships and make recommendations to the doctor. Fuzzy systems aim to produce scientific expressions and approximate results from uncertain data such as those in the field of medicine. ANNs contain neurons that mimic the biological nervous systems. A network is obtained by connecting these neurons in various ways. AI methods continue to evolve even if medical field use has been tested many times. In the present study, a brief evaluation has been made regarding the methods mentioned.

INTRODUCTION-

Artificial intelligence is a computer science that deals with the design of intelligent computer systems. The Intelligent Computer System is a system that is comparable to the intelligence of human behavior. Similar systems of the thinking ability of humans can be established with AI. Its areas of application include robotic, expert systems (ESs), automatic translation programs, meaning analyzers for natural languages (e.g., understanding questions in certain areas and understanding text), natural language sentence production (e.g., abstract poetry writing, story writing, and making computer art/music), audio analyzers (e.g., recognizing certain words in a speech and determining the boundaries between sound units), game programs (e.g., chess and bridge), and theorems proving/ problem solvers (2). Although significant progress has been made in the field of AI in recent years, the efforts of researchers to develop new inventions and programs are ongoing. Expert systems is the most important application area for AI. It is a computer program that aims to replicate the expertize of a specialist on a computer. A well-developed ES has the ability to imitate processes that can be performed by specialists, such as designing, planning, diagnosing, interpreting, summarizing, generalizing, controlling, and making recommendations (2). The data base and inference mechanism are the most important features that distinguish ES from other decision support systems.

MVC Team Communication: A Test-Driven Method

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Abstract:
The goal of MVC design is to minimize entanglement between different project components, particularly for teams with remote workers. The article suggests that teams working on a project share the design and requirements using Test Driven Development. It offers a framework where teams may operate separately from one another by communicating what they each need to supply to the other teams through the development of unit tests.

Keywords: ASP.NET, Developer Coordination, Model View Controller, Test-driven Development, Unit Testing, Web Development, MVC

Introduction:

MVC defines an architectural pattern that divides the application into three main, separate components: the Model which represents the Data, the View which represents how the data will be presented to a user and the Controller which provides a binding between the two. (1)Test-Driven Development (2) Tests as Communication Test-driven development involves writing tests first, having them fail, and then writing code that eventually passes those tests. Using this methodology, developers are forced to think about how the application will actually function before they write the code and thus the development of the application is driven by its design, which is documented in the tests. Communication in software development is vital and performed through a variety of tools such as Email, audio /video conferencing, messaging services, etc. [1] These tools while invaluable still leave room for uncertainty and coordination problems.[2], [3].

ARTIFICIAL INTELLIGENCE IN HEALTHCARE–TECHNOLOGICAL BENEFIT FOR BOTH PATIENTS AND DOCTORS

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Abstract

Artificial Intelligence (AI) is arguably the most exciting robotics industry and it is recently emerging in healthcare. Most of the researches have been focusing on prediction algorithms of patients' diseases such as cancer, cardiology, breast pathology, etc. Some findings increased computer intelligence as the main application of AI which called deep or non-deep machine learning. The gap from previous models is using one function or one type of AI to analyze, forecast diseases rather than helping patients and doctors in surgery. There are rarely white papers using AI for patients approach to training them to know more about their diseases or surgery. Therefore, with developing of more than one function of AI, the paper builds a diagrammatic conceptual model of artificial intelligence on medical app running Blockchain technology as a friendly assistant for both patients and doctors to communicate them during pre-surgery, surgery and post-surgery. First, AI as an assistant checks free appointment from doctors and patients' available time. Second, AI reminds doctors' schedule of upcoming surgery list and training patients before taking surgery. Third, deep learning AI analyses patients' healthcare record and suggesting the solutions for patients after surgery under the doctor's review. This paper hopefully will contribute to AI application in healthcare in which not only doctors using it but also patients, drug companies, insurance companies and hospitals can approach.

INTRODUCTION-

According to Buchanan, B. G. (2005) [5], AI originally is created from fantasies in the 19th century, when science fiction writers had used the prospect of intelligent machines to foster the non-human's intelligence, thence to make us think about our own human characteristics. Some writings of Jules Verne Isaac Asimov, and L. Frank Baum had inspired many afterwards AI researchers. From 1950 – 1965, scientists such as John McArthy, Marvin Minsky, Allen Newell and Herbert Simon, together with their students wrote programs to help computers solve the algebraic problems. In the field of medicine and health care, the application of AI algorithms would help doctors establish better strategies and treatment plans for patients, as well as provide doctors all the information they need to make the most appropriate indication. Many worldwide technology companies have been developing AI applications aimed at many different aspects of the field of medicine. The most obvious application of AI in this field is information management, in which collecting, storing, standardizing and tracking information paths are the first step in revolutionizing the medical system today.

COMPARISONS OF DIFFERENT MEASUREMENTS IN WI-FI SIGNAL STRENGTH USING SVM TO TUNE PARAMETER

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Abstract:
Detecting users in an indoor environment based on Wi-Fi signal strength has a wide domain of applications. This can be used for objectives like locating users in smart home systems, locating criminals in bounded regions, obtaining the count of users on an access point etc. The paper develops an optimized model that could be deployed in monitoring and tracking devices used for locating users based on the Wi-Fi signal strength they receive in their personal devices. Here, we procure data of signal strengths from various routers, map them to the user's location and consider this mapping as a classification problem. In this research work focuses on optimization strategy those results in better accuracy of the model by using the support vector machine.

Keywords: SVM, User localization, Wi-Fi signal strength, Fuzzy logic, Polykernel

I INTRODUCTION

To predict the user's location accurately, a definite and consistent model has to be trained and deployed in a tracking or monitoring device. We measure the Wi-Fi signal strength received from various routers in a bounded location and train the neural network so that it could further predict the user's location for an unknown tuple set having signal strengths. Here, we consider a setup at an office location in Pittsburgh, USA. The office has seven Wi-Fi routers and its signal strengths received from these routers categorize the location of user in the conference room, kitchen or the indoor sports room. Sample data tabulated is shown in Table 1. WS1 corresponds to the signal strength received from the router 1, WS2 corresponds to the signal strength received from the router 2, and similarly for the other routers. The class labels corresponding to the conference room, kitchen and the indoor sport are labelled 1, 2 and 3 respectively. In our setup facility, we have considered an
Android device and tabulated strengths of wireless signals captured by the device. At certain locations, the signal strengths were observed by polling the wireless signal strength at a constant time interval (every 1 s considered here). This was again repeated for other locations and suitable data was collected for one thousand and five hundred observations made at this facility for seven different routers. The model developed here, could hence be reused according to the scenario of the bounded location and the number of wireless routers in the physical facility. This data is being formulated into a pattern classification dataset by considering the seven wireless routers as the input dimensions which are used to predict the user's location in an office as one of the three dimensional categories.

Identify and stop accidents caused by drowsy drivers

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Abstract:
The Objective of this project is to develop a system to keep the vehicle secure and protect it by the occupation of the intruders. We can't take care of ours while in running by less conscious. If we done all the vehicles with automated security system that provides high security to driver, also gives alarm. This project involves measure and controls the eye blink using IR sensor. The IR transmitter is used to transmit the infrared rays in our eye. The IR receiver is used to receive the reflected infrared rays of eye. If the eye is closed means the output of IR receiver is high otherwise the IR receiver output is low. This to know the eye is closing or opening position. This output is given to logic circuit to indicate the alarm. This project involves controlling accident due to unconscious through Eye blink. Here one eye blink sensor is fixed in vehicle where if anybody looses conscious and indicate through alarm.

Keywords: drowsiness, eye blink sensor, LCD, Buzzer, Voltage regulators

1. Introduction

Vehicle accidents are most common if the driving is inadequate. These happen on most factors if the driver is drowsy or if he is alcoholic. Driver drowsiness is recognized as an important factor in the vehicle accidents. It was demonstrated that driving performance deteriorates with increased drowsiness with resulting crashes constituting more than 20% of all vehicle accidents. But the life lost once cannot be re-winded. Advanced technology offers some hope avoid these up to some extent. This project involves measure and controls the eye blink using IR sensor. The IR transmitter is used to transmit the infrared rays in our eye. The IR receiver is used to receive the reflected infrared rays of eye. If the eye is closed means the output of IR receiver is high otherwise the IR receiver output is low. This to know the eye is closing or opening position. This output is given to logic circuit to indicate the alarm. This project involves controlling accident due to unconscious through Eye blink. Here one eye blink sensor is fixed in vehicle where if anybody looses conscious and indicate through alarm. A car simulator study was designed to collect physiological data for validation of this technology. Methodology for analysis of physiological data, independent assessment of driver drowsiness and development of drowsiness detection algorithm by means of sequential fitting and selection of regression models is presented.

Water-induced shape memory effect of polyvinyl alcohol nanocomposites supplemented with graphene oxide

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Abstract

By adding graphene oxide (GO), a novel water-induced shape memory polymer based on polyvinyl alcohol (PVA) was created. A few more physically cross-linked sites might form in PVA as a result of the strong hydrogen bonding contact between PVA and GO, which significantly enhanced PVA's shape memory characteristics. We discovered shape memory behavior caused by solvents when PVA/GO nanocomposites were submerged in water. The drop in the glass's storage modulus and transition temperature was the cause of the water-induced shape recovery. The apparent increase in PVA volume suggests that the swelling plasticizing effect of water on PVA may be the cause of this. However, submerging the PVA/GO nanocomposites in water also revealed a weaker hydrogen link between PVA and GO. Consequently, the competitive hydrogen bonding and the plasticizing effect were the two primary causes of PVA/GO nanocomposites' form recovery. This work offers a foundation for creating novel shape memory polymers (SMPs) and for comprehending the process underlying the form recovery in SMPs that are caused by solvents.

Introduction

structure memory polymers (SMPs) can quickly and dramatically change their structure in response to external stimuli like heating, electric, or magnetic fields.Fields.1-4 A polymer must possess both a reversible switching transition and a stable network in order to display shape memory.5,6 The network comprises hydrogen-bonded polymer networks, crystalline or amorphous phases, liquid crystal phases, supramolecular entities, and chemically or physically cross-linked points, crystalline domains, or stiffness chains, which give the polymer chain network its permanent shape.7–9 and light-reversible coupling groups, which offer the capacity to absorb energy and recover principally. The glass/rubber and crystallization/melting transitions are the most often utilized switching transitions for SMPs. It may be observed that the two necessary structural components are commonly found in nearly all polymers, as they are capable of forming network topologies and have at least one temperature transition. However, only a small number of polymers may be employed as useful SMPs because of structural drawbacks of some polymers (such as poor mechanical properties and too high or too low switching temperatures). Certain polymers, like covalently cross-linked epoxy and polyisoprene, physically cross-linked polyurethanes,13 and polyisoprene,12, have a good surface modulation elasticity (SME) as a result of their specific microstructures. butadiene-styrene copolymers.14Generally speaking, external warmth is what triggers SMP shape recovery. Other stimuli that are currently employed to stimulate shape recovery after deformation, such as Joule heating, moisture, or light, must be taken into consideration if the heating process is not available.

Magnetic and structural properties of PVA/CoFe2O4 nanocomposites made via mechanical alloying

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A B S T R A C T

Using a two-step process, polyvinyl alcohol/cobalt ferrite nano-composites were effectively created in this study. First, a spherical single-phase cobalt ferrite with a mean particle size of 20–4 nm was created using a mechanical alloying approach, and it was then heavily embedded into a polymer matrix. grinding. The findings showed that while the mean particle size and shape of cobalt ferrite were not considerably impacted, an increase in the amount of polyvinyl alcohol and the milling duration caused the particles to spread more uniformly in the polymer matrix. The cobalt ferrite nanoparticles were encircled by polyvinyl alcohol chains, as seen in transmission electron microscopy images. The contact between the polymer and cobalt ferrite particles in the nanocomposite samples was also verified. Evaluation of the magnetic characteristics revealed that saturation magnetization. When compared to pure cobalt ferrite, the values of the coercivity and anisotropy constants reduced in the nano-composite samples. However, because of the domain wall mechanism, the coercivity values of linked nano-composite samples increased as the amount of PVA increased.

Keywords: A. Composites A. Nanostructure B. Magnetic properties C. Electron microscopy C. X-ray diffraction

Introduction

Synthesis and characteristics of polymeric magnetic nano-composites made of organic polymers and magnetic materials of nanometric dimensions have been extensively studied throughout the past ten years.sparked interest in science and technology [1,2]. When the necessary physical and chemical characteristics of these constituents are combined, multifunctional nano-composites with exceptional properties are produced, and the total of their separate attributes is also enhanced [3, 4]. Encasing magnetic nanoparticles in a non-magnetic polymer matrix, for example, enhances the intrinsic characteristics of the magnetic particles, such as their chemical lowers toxicity, inhibits the aggregation of magnetic particles, and increases stability and dispersibility [5-7].When compared to other spinel ferrites, spinel cobalt ferrite, which has the chemical formula CoFe2O4, is one of the magnetic materials that shows the most promise in terms of high coercivity, moderate saturation magnetization, excellent chemical stability, mechanical hardness, and large magneto-crystalline anisotropy [8, 9]. Due to these characteristics, it is an exceptional option for use in ferro-fluid, catalysts, high density magnetic recording mbiomedical domains, such as biosensors, magnetic separation, targeted drug delivery, magnetic resonance imaging (MRI), and hyperthermia [6,12].

SHARING AND SECURE MINING OF FINANCIAL DATA: CRAZY CRYPTOGRAPHY AND LOGIC

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Abstract:- Data mining, because of its broad spectrum of applications, is a popular research area. Due to the increasing amount of data in the database, there is a need to transform such data into useful information. Data mining techniques can transform data into knowledge, but mining process could leads to leakage of private information about individuals. Therefore, to address the privacy issues related to mining process, a new technique known as Privacy Preserving Data Mining (PPDM) is gaining acceptance. PPDM refers to the process of examining the data mining algorithms for the security of sensitive information. In the present study data-mining was performed on the financial dataset to make managerial decision making process better and secure. In this study an attempt was made to tackle principle security issues by proposing a secure model using fuzzy logic and cryptography.

Keywords: Cryptography; Financial database; Data mining; Fuzzy Logic; Privacy; Sensitive data.

1. Overview

Database in cyber banking sector, is growing at much faster rate, while banks need to administer and process this gradually growing database in an effective manner. These days banks are adapted to internet to perform many banking services. Internet facilitates customers to perform various banking operations anywhere anytime which lead to banking industry for its growth. But the privacy and security issues remain the major concerns with internet banking. Unauthorized signatories attack on banking data communicated over social network. Thus all-important is to establish a banking architecture that can secure the private data and integrity of transactions along with its usefulness.
Sensitive information taken from mined datasets by crooked users is frequently accepted as "database inference" problem. Registered users of this innovative technology are worried for security of the environment with which they transact. In most cases the bank's databases is in readable form and also could be accessed by outside users. Therefore data needs to be protected by a stronger apparatus than the normally accepted cryptographic algorithms while making online transactions. The main objective of this research was to study the effectiveness of security of the database and the mechanism applied at client, server and the administrative levels. The areas of cryptography and fuzzy logic have emerged as pillars for the information security [Madanayake et al., (2012)]. In this study, we have used the hybridization of fuzzy logic and cryptography algorithms with secret sharing keys to prevent the leakage of sensitive information while data mining. In this model financial database has been mined using one of the technique of data mining i.e frequent pattern growth (FP) and fuzzified for extracting

Use Of By-Product Phosphogypsum In Cement Concrete Pavement

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Abstract: Various industrial byproducts are currently being used in the twenty-first century to produce environmentally friendly building materials that take the role of conventional building materials including concrete, bricks, solid blocks, hollow blocks, tiles and pavement blocks. These industrial wastes release harmful substances into the air, water, soil, flora, fauna, and aquatic life, so affecting human health and standard of living. Research indicates that a number of affluent countries have had experience using industrial trash for road construction in recent years. These waste materials are used in road construction depending on technical, ecological, and financial considerations. India is home to a wide range of businesses spread across its several states. These industries produce millions of tones of industrial waste. Phosphogypsum can be utilized in place of traditional sand to provide high-quality substitute materials for pavement layer building. Up to 93% of phosphogypsum is made up of calcium sulphate; the remaining portion is made up of a mixture of contaminants such sand, organic compounds, calcium fluoride, and chlorides. The proper use of phosphogypsum waste is the foundation of this study, which examines a number of pavement material qualities. Enhancing the strength of the various cement concrete pavement layers and WBM course is the primary goal of the work. The many properties of phosphogypsum, such as sieve analysis, moisture content, specific gravity, and workability, can be ascertained in this study. Keywords: pavement, phosphogypsum, utilisation, industrial wastes

INTRODUCTION

A solid secondary product substance known as phosphogypsum is produced when phosphoric acid, a common component of fertilisers, is produced. For every tonne of phosphoric acid generated, 4.5–5.0 tones of Phosphogypsum are produced, depending on the source of the natural rock. An essential raw material for the manufacturing of detergents (6%), fertilisers (88%), and other agricultural products is phosphoric acid. The wet process is the most often utilized of the numerous methods for producing phosphoric acid. In this procedure, phosphoric acid is used to dissolve the phosphate rock Ca10F2(PO4)6 to create a monocalcium phosphate solution. Then, mono-calcium phosphate and sulfuric acid are combined in a succession of tanks to create di-hydrated calcium sulphate (CaSO4.2H2O), which can then be filtered away from phosphoric acid. The completed filter cake is moved through conveyor belts where the phosphogypsum is allowed to settle, or it is slurred with water and pumped to sedimentation ponds. The Phosphogypsum produced by phosphoric acid plants is currently stacked, with a little quantity being utilized by other industries, particularly in the production of cement, as a raw substitute for mineral gypsum and plaster board. Safe disposal and appropriate use of phosphogypsum are necessary to ensure that its effects on the environment are as

The analysis of gene sequence data, correlation-based clustering and the modified Naïve Bayesian classification

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Abstract:
Clustering and statistical data is divided into the number of clusters that correlate best to the statistically examined data points. Data mining, as it is often known, is the process of identifying patterns within large statistics and data sets that pertain to methods connected to machine learning, statistics, and sophisticated database systems. By applying a unique classification strategy, this method identifies the gene sequence and reduces execution time by grouping the gene data based on correlation-based clustering, which enhances classification accuracy under the curse of dimensionality.

***Keywords*:** Clustering; Classification, Data mining, Progression

Introduction:

The importance in Data mining technique in the process of human genetics are variety of applications are used, an significant objective exist to appreciate the mapped affiliation flanked by the personage disparity in human gene DNA genomic sequences and unpredictability in various code algorithms for information database sanctuary issues, for transformation vulnerability and parental comparisons, identification differences. In the country like India which is steadily occupied in attendance is gigantic requirement for DNA genetic databases which may facilitate in prevention in diverse forms of swindles as like Passport, License, Ration Card deceit, other supplementary hoax etc. Also quite a lot of prophecy or visualization and very advanced mining performances are available to enhance it, and these are used to authorize, effort to determine original process techniques for discriminate DNA gene sequences or exons, from non-coding DNA gene progression sequence or introns. So the information mining is the unsurpassed method to evaluate and extort the genomic data, this technique is moreover supportive to make the frequent code algorithm The very imperative distinctive point in the dataset is the information detection from the massive group of copious statistical data. Which move ahead in computer knowledge, in meticulous the network, enclose led to “data and sequence explosion”. Nowadays, the numerous developments in the government, health care, education, science and information technology raises the density of information. The processing of large size data in electronic form regarded as the bigdata. The storage, transfer and the extraction of meaningful information from large scale data are the major processes in the Big Data analysis. In medical field,

Multiple Theorems on Set-Valued and Single-Valued Precis´ Vector Mappings

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Abstract:
In metric space, we introduce and show various fixed point results for set-valued Prešic´ type almost F-contractive mapping , Prešic´ type almost F-contractive mapping, and set-valued Prešic´ type almost F-contractive mapping in this paper. We also provide examples demonstrating the applicability of our main theorems. The Prešic´ type class of set-valued Prešic´ type nearly contractive operators does not include the new class of set-valued Prešic´ type almost F-contractive operators, as these examples demonstrate.

Keyword: Set-valued; fixed point Set-valued Prešic´ type virtually F-contractive; Prešic´ type nearly contractive; Prešic´ type nearly F-contractive

Introduction:

Convergence of certain sequences S. B. Prešic´ [2] generalized Banach contraction Banach [1] introduced a famous fundamental fixed point theorem, also known as the Banach contraction principle. There are various extensions and generalizations of the Banach contraction principle in the literature. Prešic´ [2] gave a contractive condition on the finite product of metric spaces and proved a fixed point theorem. Additionally, C´ iric´ and Prešic´ [3], Abbas et al. [4], Shehzad et al. [5], Pacular [6], and Yes¸ilkaya et al. [7] have extended and generalized these results. Some generalizations and applications of the Prešic´ theorem can be seen in [8–11].

Theorem 1. *Let* p*X, d*q *be a complete metric space, k a positive integer and T* : X^k Ñ *X a mapping satisfyingthe following contractive type condition*

$$d\mathbf{p}T\mathbf{p}x_1, x_2, ..., x_k\mathbf{q}, T\mathbf{p}x_2, x_3, ..., x_k\grave{}1\mathbf{qq} \text{ đ' } q_1 d\mathbf{p}x_1, x_2\mathbf{q} \grave{} q_2 d\mathbf{p}x_2, x_3\mathbf{q} \grave{} ... \grave{} q_k d\mathbf{p}x_k, x_k\grave{}1\mathbf{q}, \quad \mathbf{(1)}$$

for every $x_1, x_2, ..., x_k$`1 in X, where $q_1, q_2, ..., q_k$ are non negative constants such that $q_1$ ` q_2 `... ` q_k ă 1.

Subsequently, there exist a unique point x in X such that T*px, x, ..., x*q " x. Moreover, if $x_1, x_2, ..., x_k$, are arbitrary points in X and for n P N,

$$x_n\grave{}k \text{ " } T\mathbf{p}x_n, x_n\grave{}1, ..., x_n\grave{}k'1\mathbf{q}, \quad \mathbf{p}n \text{ " } 1, 2, ...\mathbf{q}$$

then the sequence* $\mathbf{t}x_n\mathbb{u}_{n\text{"}1}^{\infty}$ *is convergent and

$$\lim x_n \text{ " } T\mathbf{p}\lim x_n, \lim x_n, ..., \lim x_n\mathbf{q}.$$

An Analysis of Mathematics' Linear Algebra and Matrix

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Abstract:

In this we are presenting a study on the linear algebra and matrix in mathematics. Linear algebra is the branch of mathematics concerned with the study of vectors, vector spaces (also called linear spaces), linear maps (also called linear transformations), and systems of linear equations. Vector spaces are a central theme in modern mathematics; thus, linear algebra is widely used in both abstract algebra and functional analysis. Linear algebra also has a concrete representation in analytic geometry and it is generalized in operator theory. It has extensive applications in the natural sciences and the social sciences, since nonlinear models can often be approximated by linear ones.

Keywords- Linear Algebra, Matrix, Linear Spaces, n- Tuples, Vectors, Linear Equation.

Introduction:

Linear algebra had its beginnings in the study of vectorsin Cartesian 2-space and 3-space. A vector, here, is a directed line segment, characterized by both its magnitude, represented by length, and its direction. Vectors can be used to represent physical entities such as forces, and they can be added to each other and multiplied with scalars, thus forming the first example of a real vector space. Modern linear algebra has been extended to consider spaces of arbitrary or infinite dimension. A vector space of dimension *n* is called an *n*-space. Most of the useful results from 2- and 3-space can be extended to thesehigher dimensional spaces. Although people cannot easily visualize vectors in *n*-space, such vectors or *n*-tuples are usefulin representing data. Since vectors, as *n*-tuples, are *ordered* lists of *n* components, it is possible to summarize and manipulate data efficiently in this framework. For example, in economics, one can create and use, say, 8-dimensional vectors or 8-tuples to represent the Gross National Product of 8 countries. One can decide to display the GNP of 8 countries for a particular year, where the countries' order is specified, forexample, (United States, United Kingdom, France, Germany, Spain, India, Japan, Australia), by using a vector (v_1, v_2, v_3, v_4, v_5, v_6, v_7, v_8) where each country's GNP is in its respective position. A vector space (or linear space), as a purely abstract concept about which theorems are proved, is part of abstract algebra, and is well integrated into this discipline. Some striking examples of this are the group of invertible linear maps or matrices, and the ring of linear maps of a vector space. Linear algebra also plays an important part in analysis, notably, in the description of higher order derivatives in vectoranalysis and the study of tensor products and alternating maps.

Real-time fluid dynamics for gaming

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Abstract:

In this article, we present a simple and fast fluid dynamics solver for games engines Our tools can greatly improve games by providing realistic smooth effects such as smoke swirling past the moving figure. The possible applications are endless. Our algorithms They are based on the physical equations of fluid flow, namely the Navier-Stokes equations. These equations are notoriously difficult to solve when rigorous physical accuracy is paramount. Our solvers, on the other hand, aim for visual quality. Our focus is on stability and speed, meaning that simulations can be developed at arbitrary time steps. U.S also show that our solver is easy to code, providing complete C code implementation in this document. Our algorithms work in real time for an acceptable grid size in both two- and three-dimensional standard computer devices, as demonstrated during the presentation this presentation at the conference.

Introduction :

Flow currents are everywhere: from rising smoke, clouds and fog to the flow of rivers and oceans Because one of the main goals of games is to immerse players in a believable virtual world in the world, it is desirable to add fluid flows to game engines. Many adhoc images already exist models that try to fake fluid effects like textured particles spirits However, animating them convincingly is not easy. We believe that a better option is to use the physics of fluid flows that were evolved from the time of Euler, Navier and Stokes (1750s-1850s). These development led to a precise mathematical calculation for the so-called Navier-Stokes equations a model of most naturally occurring fluid flows. However, these equations are only analytical solutions in very simple cases. Thus, no progress was made until the 1950s researchers began using computers and developing numerical algorithms to solve the problem equations. In general, these algorithms strive for accuracy and are quite complex and time-consuming on the back This is because applications that require these solvents must be physical exact Of course, it is essential that the stresses and strains of the plane or bridge are present accurately calculated. On the other hand, in computer graphics and games, it is the most important simulations look convincing and are fast. In addition, it is important that the solvers are not too complex to implement on regular computers, game consoles or PDAs. in In this paper, we present algorithms that fulfill these requirements. To reach them We deviate from the conventional wisdom of computational

Navier-Stokes, Fluid Dynamics and Image and Video in Esperanto

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Abstract :

Painting a picture involves filling in part of the picture or video using environmental data. Applications includes recovery of damaged photos and movies and delete selected items. In this article we introduce a class of automatic methods for digital use painting This approach uses ideas from classical fluid dynamics spreads the isophotic lines continuously to the area to be painted. The main idea is think of image intensity as a "stream function" a two-dimensional incompressible flow. Lapland image intensity plays the role of a fluid vortex; it is transported by the vector to the area to be painted field defined by the flow function. The resulting algorithm is designed to continue isophotos during installation gradient vectors at the border of the painting area. The method is directly based on the Navier-Stokes equations to fluid dynamics, which has an immediate advantage well developed theoretical and numerical results. it is a new approach to the computer representation of ideas fluid dynamics for computer vision and imaging problems analysis.

Introduction:

Image painting [2, 10, 20, 38] is a filling process data is missing from a certain area of a still or video image. Applications range from removing objects from a scene retouching damaged paintings and photographs. paint is the creation of a modified image with the painted area blends perfectly into the image like this the average viewer will not notice. Traditionally painting it was made by professional artists. To take pictures and film, painting is used to repair damage (eg on photos or scratches and dust spots on film) or add or remove elements such as stamped date and red-eye removal of photos, the infamous "airbrushing" of politics. enemies [20]). Automation of digital painting techniques is currently an active area of research [2, 3, 16, 21, 22]. In this paper, we introduce a new digital algorithm painting pictures that try to imitate basic techniques used by professional restorers. Our algorithm, motivated by the method proposed in [2], contains a Direct solution of Navier-Stokes equations for incompressible liquid The image intensity function plays its role of a stream function whose isophotic lines are defined by streamlines of the flow. After the user has selected the regions is returned, the algorithm automatically forwards the data to the painting area. Fulfillment is done with such a way to isophotograph incoming lines at area boundaries are prepared from the inside.

Expert position paper on cardiovascular disease and air pollution

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Abstract:

Air pollution is a huge problem for the entire world population and has numerous negative consequences on human health. According to the Global Burden of Disease study, ambient air pollution was responsible for 3.1 million of the 52.8 million deaths globally in 2010 across all causes and age groups.1. In addition, among the modifiable disease risk factors, ambient air pollution came in at number nine, ranking higher than other well-known risks including drug use, low physical activity, high cholesterol, and a diet heavy in sodium. Lastly, the index that quantifies the amount of time spent in states of poor health, the global disability-adjusted life years, attributes 3.1% of this to air pollution.

Introduction:

Although it is intuitive that air pollution is an important stimulus forthe development and exacerbation of respiratory diseases, such as asthma, chronic obstructive pulmonary disease, and lung cancer, there is generally less public awareness of its substantial impact oncardiovascular disease. Historically, the 1952 Great Smog of London led to an increase in cardiovascular death as well as deathsdue to respiratory disease. Subsequent studies in the 1990s, such as the Harvard Six Cities[2] and American Cancer Society cohortstudies,[2,3] established an enduring positive association between long- term exposure to air pollution and total and cardiovascular mortality,mainly due to coronary artery disease.[4] In Europe, the first study that supported this association between long-term exposure and mortal-ity was the Netherlands Cohort Study on Diet and Cancer.[5] Associa-tions with cardiovascular morbidity and mortality are also seen withshort-term (e.g. day-to-day fluctuations) pollutant exposures of resi- dents in large urban areas worldwide, including the United States ofAmerica[6] and Europe.[7,8] Among multiple pathways linking air pollu-tion to cardiovascular morbidity and mortality, the most relevant arethe induction of oxidative stress, systemic inflammation, endothelialdysfunction, atherothrombosis, and arrhythmogenesis.[9]

Here, we present an expert consensus document on behalf of the European Society of Cardiology that explores the mechanisms andrelationships between ambient air pollution and cardiovascular disease. The purpose of this document is to highlight and raise aware- ness of the importance and wide-ranging impact of air pollution on cardiovascular-disease.

Effects of Water Pollution on HumanHealth and Disease Heterogeneity: A Review

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Abstract:

More than 80% of human sewage is discharged into rivers and oceans without any treatment, causing environmental pollution and more than 50 diseases. Globally, 80% of diseases and 50% of child deaths are related to poor water quality.

Keywords: waterpollution,humanhealth,diseaseheterogeneity,waterintervention,healthcost

Introduction:

Waterisanessentialresourceforhumansurvival.Accordingtothe2021WorldWaterDevelopment ReportreleasedbyUNESCO,theglobaluseoffreshwaterhasincreasedsix-foldinthepast100years andhasbeengrowingbyabout1%peryearsincethe1980s.Withtheincreaseofwaterconsumption, water quality is facing severe challenges. Industrialization, agricultural production, and urban life have resulted in the degradation and pollution of the environment, adversely affecting the water bodies(riversandoceans)necessaryforlife,ultimatelyaffectinghumanhealthandsustainablesocial development(Xuetal.,2022a).Globally,anestimated80%ofindustrialandmunicipalwastewateris dischargedintotheenvironmentwithoutanypriortreatment,withadverseeffectsonhumanhealth and ecosystems. This proportion is higher in the least developed countries, where sanitation and wastewater treatment facilities are severely lacking.

Water pollution are mainly concentrated in industrialization, agricultural activities, natural factors, and insufficient water supply and sewage treatment facilities. First, industry is the main cause of water pollution, these industries include distillery industry, tannery industry, pulp and paper industry, textile industry, food industry, iron and steel industry, nuclear industry and so on. Various toxic chemicals, organic and inorganic substances, toxic solvents and volatile organic chemicals may be released in industrial production. If these wastes are released into aquatic ecosystems without adequate treatment, they will cause water pollution (Chowdhary et al., 2020). Arsenic, cadmium, and chromium are vital pollutants discharged in wastewater, and the industrial sector is a significant contributor to harmful pollutants (Chen et al., 2019). With the acceleration of urbanization, wastewater from industrial production has gradually increased. (Wu et al., 2020). In addition, water pollution caused by industrialization is also greatly affected by foreign direct investment. Industrial water pollution in less developed countries is positively correlated with foreign direct investment (Jorgenson, 2009). Second, water pollution is closely related to agriculture. Pesticides, nitrogen fertilizers and organic farm wastes from agriculture are significant causes of water pollution (RCEP, 1979). Agricultural activities will contaminate the water with nitrates, phosphorus, pesticides, soil sediments, salts and pathogens (Parris, 2011).

Effective Human Resource Management: A Review

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Abstract:

The paper makes a case for the integration of the largely separate literatures of environmental management (EM) and human resource management (HRM) research. The paper studies human resource management (HRM) and how to boosts up the effectiveness of HRM. The contributions of the paper lie in drawing together the extant literature in the area, mapping the terrain of the field, identifying some gaps in the existing literature and suggesting some potentially fruitful future research agendas. The findings of the review suggest that understanding of how HRM practices influence employee motivation to become involved in environmental activities lags behind that of how organizations develop Green abilities and provide employees with opportunities to be involved in EM organizational efforts. Organizations are not using the full range of HRM practices, and this may limit their effectiveness in efforts to improve EM.

Introduction:

The contributions of this paper are threefold: first, to survey and draw together the HR elements of EM; second, to map the terrain of this field; and third to outline some avenues for potential further study in HRM. Attracting high-quality staff is a key HR challenge in the 'war for talent'. It seems that some employers, particularly major multinational companies.The move to more web-based recruitment activity has permitted recruiters to provide much more information, such as detail on their EM activities, compared with traditional media such as newspaper advertising or brochures.Training is widely seen in the literature as a key GHRM intervention, not least in order to heighten staff awareness of the environmental impact of their organization's activities.A key to the effectiveness of training is developing an environmental knowledge base. Rothenberg (2003) reports that most environmental projects combine more than one category of knowledge.Using PM in EM presents many challenges, not least here being how to measure environmental performance standards across different organizational departments/units, and gaining useable data on the environmental performance of these units and staff. Some firms have addressed this issue by installing corporate-wide environmental performance standards, and Green information systems/audits to gain useful data on environmental performance (Marcus and Fremeth 2009).

The different Management Dimensions of Corporate Social Responsibility and its advantages

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Abstract:

Organizations are increasingly recognizing corporate social responsibility as an innovative strategic and management function necessitating their concentration. While formerly perceived solely as an altruistic scheme providing general benevolence, without end result corollary CSR is shifting from the borders of apprehension to the core in frontal organizations. In a global economy, organizations are progressively more conscientiousness to aid, exhibit and support corporate social responsibility (CSR). Sustainability requires that organizations volte-face their company goals and objectives from exclusive attention to profit making to CSR. Universally, the effect of CSR is becoming obvious in societies ranging from human rights and labour and employment practices to health care and the environment. HR occupies a vital position involving directing and educating their organizations on the significance of CSR and simultaneously purposefully executing effective HR management practices that sustain the organization's business and CSR goals.

Introduction:

Nowadays, there are several allusions to corporate social responsibility (CSR), sometimes referred to as corporate citizenship, both in the workplaces and other spheres of life. In the last couple of decades, CSR has achieved impetus due to demands from consumers, the media, activists and various public organizations insisting that organizations give to society. These days, reputation, brand, reliability and trust are progressively deemed as imperative determinants of corporate social responsibility. Organization management have repeatedly analyzed corporate social responsibility (CSR) simply as an additional basis of pressure. However arising from the amplified significance positioned on CSR by customers, employees, and society, a few of them now see it as an imaginative opening to necessarily reinforce their trades and simultaneously give to the general public. CSR is now seen as vital to their general stratagem, assisting them to tackle important industry problems.

An Analysis of Indian Microfinance Institutions' Performance

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Abstract:

In a country like India, where 70 percent of the population lives in rural areas and 60 percent depends on agriculture (according to World Bank reports), microfinance can play a key role in providing financial services to poor and needy people. Microfinance is considered a useful tool to promote socio-economic growth in a developing country like India. It is expected to play an important role in poverty alleviation and development. The focus of this paper is to examine the functioning and role of microfinance institutions in the development of India. The survey revealed that the number of 4,444 MFIs that received loans from banks increased from 9.8% to 257.6% to 4,444% between 2015-2016 and 2016-2017. In 2016-17, the total number of loans from financial institutions by banks decreased by 7.2 percent compared to the previous year. The loan balance of financial institutions increased in all subsequent years. In 2015-16 and 2016-17, it grew by 13.7 percent and by 14.3 percent. It has also been observed that the business models of MFIs in India are becoming urban centric as shown by the fact that in 2017 the share of rural clients decreased in 4,444 states/UTs compared to 2016, excluding Assam, Arunachal Pradesh, Nagaland. , Jammu and Kashmir and Andaman. The highest increase was in Andaman (267%), followed by Jammu and Kashmir 4,444 (17%). The share of income loans remained unchanged in 2015 and increased to 94 percent in 2017. Indicators related to the general financial structure, such as return on assets and return on equity, the solvency ratio, increased during this period and observed a sharp decrease in the balance sheet size of 4,444 financial institutions.

Keywords: Microfinance, MFI’s, Growth of Microfinance, Poverty.

Introduction:

Microfinance is not a new concept. It dates back to the 19th century, when moneylenders operated informally like formal financial institutions today. Over the past two decades, policy makers, international development organizations, non-governmental organizations and others have developed various approaches to development cooperation to reduce poverty in developing countries. One of these strategies, which have become increasingly popular since the early 1990s, involves microfinance systems that provide financial services to the working poor in the form of savings and credit facilities (Johnson and Rogaly, 1997).

According to the World Bank, India is among the poor earners. It is second populated country in the world. 70 percent of its population lives in rural area. 60% of people depend on agriculture; as a result, rate of underemployment is high. Rural people have very low access to institutionalized credit (from commercial bank). Since 1990s, poverty reduction has taken priority at both national and international development levels. Under this, governments have taken various initiatives.

E-Banking Service Quality: A Study on Public SectorBanks

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Abstract:
Technology has played a major role in today's current business world. The advancement in the Information Technology has changed the entire face of the banking practices nowadays. Information Technology has provided the competitive banking products to the customers. Banking industry around the world has rapid transformation over the last decade. The fastest growth and extensive use of the Internet in the marketing practices of business firms, service quality delivery through electronic platforms for electronic commerce becomes one of the most critical issues for marketers in the service sector. The purpose of this study is to find the effectiveness of electronic banking service quality and to know how much customers are adapted to electronic banking. This empirical study is based on primary data collected from the customers of public sector banks.

Keywords: Electronic Banking, Information Technology, Service Quality,

Introduction:

The banking sector has been sustained growth its operation by making use of technology.The advancement of this technology, banks has adopted various systems to carry bankingtransactions easily and quickly. Nowadays Electronic banking is a very common service that is used by every person in a way or another for making transactions. It can be use of internet banking services, mobile banking, ATM services. Banks offers wide range of E-banking services. Service quality aims to serve the customers in a better way such that customer need is satisfied besides customer to attain complete satisfaction while using a particular service. The customer has a certain set of attributes in his mind with respect to a product or service. So,service quality has become an important factor to determine the customer liking and disliking fora particular service.

Effective Automation of Financial Industry Decision-Making Processes: A Case Study and Integrated Model

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Abstract:
As new technology permeates economies, businesses go digital. Artificial intelligence and cognitive technologies are influencing new business models, decision-making procedures, and customer experiences. The tools significantly and deeply alter the financial sector by reorganizing the markets and replacing existing financial service models with automated lending decision-making. These changes heighten the conversation on how the application of innovation affects company performance and efficiencies. In this context, we examine how information technology and fintech achievements affect the decision-making process and how to set up a more effective business process. Our study continues with a case study of creative business management in the fintech industry and examines how automation of decision-making processes affects the commercial value of the organization. The research led us to create a general business value framework that we use to evaluate performance on input, processes, and output stages. We also assess the effectiveness of the artificial intelligence application implemented in the financial institution under study, and we recommend further improvements to the efficiency assessment process as well as next-generation strategies and enhancements based on the most recent fintech trends and developments to sustain high levels of competitiveness. Based on this, we provide a generalized fintech AI application model that can be immediately and extensively used for efficiency analysis in other similar firms.

Keywords: Decision-making, Artificial intelligence, Efficiency, Digital economy, Digital transformation, fintech.

Introduction:

Emerging technologies encroach on economies. Both modern society and industry are moving toward digitalization. The "digital natives" spend their entire lives in environments with networked digital technologies. The "digital native organizations" depart from the conventional methods of conducting business, analyzing competitive situations, problem-solving, and decision-making. This change in perspectives and beliefs results in agile performances from the businesses that, when they exercise quickly, intently, and adaptably, accelerate business results. The term "Fourth Industrial Revolution" refers to these recent advancements impose the following: (i) new business structures; (ii) extensive use of information resources to enhance goods and services and boost output; and (iii) various cooperation arrangements for cooperative innovations, as well as (iv) a focus on the expectations and experience of customers. Rather than relying on traditional cost competitive advantages, innovation-based competitive strategies help organizations become more competitive. Greater market share is the outcome of increased competition, and industry above-average profitability depends critically on managerial efficiencies.

Workplace spirituality –conceptualization and operationalization

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Abstract:
In the era of positive psychology, organizations must incorporate humanistic and spiritual values into the workplace so that people's hearts, minds and souls can grow and flourish. Spirituality is considered one of the most important dimensions of human personality. This article is an attempt to explore the meaning and role of spirituality in organizations in the current context. This article helps to know the various aspects related to the conceptualization of spirituality, to know the differences between spirituality and religion, and to create awareness about workplace spirituality, its importance in the work environment and organization of the employees. The literature reveals that nowadays spirituality plays an important role not only for the people working in the organization, but also in the organization and thus in increasing their performance and productivity. The growth of spirituality in the workplace has proven its needs today. This article also provides a theoretical basis for the positive outcomes of spirituality and offers recommendations on how organizations should seek to promote the implementation of spirituality in organizations..

Introduction:

Positive psychology has changed the orientation of scholars and researchers because research focuses on factors or variables that can play a significant role in positive outcomes. This positive orientation can also be seen in studies related to the organizational environment. This globalization is accompanied by many social and economic changes and demographic changes in the workforce, including layoffs; downsizing, mergers, increased employee stress and burnout, decreased job satisfaction, environmental pollution, energy crisis, technological development, unethical corporate behavior, workplace violence, etc. increased interest in paradigm shifts in organizational science and management theory. and practice. That new paradigm appearing in organizations was also called the "spirituality movement". Spirituality is now seen as an important positive variable in defining various aspects of life and organizations as it is presented there as workplace spirituality. This paper is an attempt to present the different meaning of spirituality and workplace spirituality. The concept of spirituality is much broader. The term "spirituality" comes from the Latin word "spiritus" or "spiritualis" which means breath, breathing, air or wind (Merriam-Webster). Spiritus is defined as "the living or vital principle intended to give life to physical organisms" (Merriam-Webster). This means that the spirit is the life force that resides within us when we live and breathe (Garcia-Zamor, 2003). Spirituality is a word used in many contexts, meaning different things to different people at different times in different cultures. Spirituality is said to transcend all living beings.

A thorough analysis of Egypt's renewable energy sources: Grid Codes, Current Situation, and Future Prospects

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Abstract:
The swift population growth in Egypt makes the expansion of the energy sector a pressing concern. Applications of renewable energy sources (RESs) in particular are crucial to meeting energy demand. Egypt therefore has big plans for RESs in order to combine economic expansion with a future of sustainable energy. Egypt has a lot of potential for RESs and their uses, but the amount of research done on this modality is still far short of what is needed. Surprisingly, aside from wind energy in coastal locations, the use of hydropower and emergent solar energy is thought to be the most viable RES variation. This overview outlines the developments in Egypt and identifies areas of interest for RES's most current research, including as Egypt's photovoltaic (PV), solar chimney (SC), concentrated solar power (CSP), and wind energy sectors. The distribution networks must be connected with a variety of energy storage solutions in order to optimize Egypt's RES hosting capability. Ultimately, a perspective on current deficiencies, forthcoming goals and initiatives, and apparent suggestions are outlined for the Egyptian grid.

Keywords: Egyptian grid, renewable energy sources, grid connection codes, concentrated solar plant, solar chimney, wind energy, energy storage systems.

Introduction:

Every year, the International Energy Agency (IEA) publishes evaluations of the world's energy production in April. It offers energy-related data and statistics, ensures energy security, monitors renewable energy transitions, and The International Energy Agency (IEA) released a report in 2021 [1] stating that although global carbon dioxide (CO2) emissions decreased by 5.8% in 2020 (almost 2 Gigatons CO2), the amount of CO2 related to energy worldwide remained at precisely 31.5 Gt in the atmosphere. Researchers have been very interested in advanced renewable energy technologies that have been included into Egypt's electricity infrastructure over the past ten years. To show this pattern, Fig. 1. Furthermore, the IEA energy assessment [2] indicates that the growth rate of electricity demand during the previous 20 years for different regions indicates a significant reduction in 2020, as illustrated in Fig. 2. According to [1], Figure 3 shows the increase in power generation from RESs for several countries from the 1970s.

Present expansion strategies of various countries anticipate a higher proportion of renewable energy sources (RESs) in the mix of energy generation. For instance, Egypt's economy is listed as one of the top eleven in the world [3].

Effect of Antenna Configuration on Thrust Performance in a Microwave Discharge Ion Engine

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Abstract:

The effects of antenna configuration on the thrust performance of a 30-W-class miniature microwave discharge ion engine were investigated. The ion beam currents were measured for three different antenna configurations such as disc, star, and cross antennas. The ion beam current of the star antenna was the largest among the three configurations and that of the disc antenna was the smallest. The effect of good coupling with plasma exceeded the effect of large losses on the antenna surface under low mass flow rate with low plasma density. The effect of large losses on the antenna surface also exceeded the effect of good coupling with plasma under high mass flow rate. The results showed that the optimum antenna shape depends on the desired mass flow level due to the tradeoff between microwave plasma coupling efficiency and surface-area recombination. It was also found that the disc antenna was the best at low mass flow rate and the star antenna was the best at high mass flow rate.

Introduction:

he adoption of small satellites, with their flexibility, short development time and low cost, has been a breakthrough in space applications. Until recently, however, size restrictions have limited the capacity of the available propulsion systems. Hence, mN class miniature propulsion systems will experience a growing demand in the future.1 A miniature microwave discharge ion engine is a candidate for use as a miniature propulsion system,2 since an ion engine produces a high thrust efficiency, exceeding 70%, with specific impulse of 3,000-8,000 sec. Therefore, there have been and will be many missions using the ion engine.3-5 The adoption of the miniature ion engines into small satellites will expand their capabilities, due to the increase in delta velocity. That is, missions such as Mars exploration would be possible. Furthermore, self-disposal of satellites whose missions have been completed will also be possible, eliminating destruction or retrieval costs. Several studies have been conducted on the miniature ion engine.6-7 Wirz et al. showed good performance of the miniature ion engine.6 An electron bombardment-type ion source was used for ion production in that study, so that operation time was limited by the thermionic cathode lifetime.

Design and Analysis of a 28 GHz Microstrip Patch Antenna for 5G Communication Systems

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Abstract:

In this paper, a 28GHz microstrip patch antenna (MSPA) design and performance analysis for fifth-generation (5G) communication systems is presented. The antenna is designed using FR-4 substratematerialwith thickness of 0.244 mm, and dielectric constant (εr) of 4.4 to operate at 28 GHz and analyzed using CST (Computer Simulation Technology) simulator. The simulated results show that, the beam-gain of 7.587 dBi, directivity of 7.509 dBi, the radiation efficiency of 98.214 %, and bandwidth of 1.046 GHz. As compared to other similar designs reported in the literature, the proposed antenna shows significantly better bandwidth, beam-gain, return loss, and radiation efficiency. Therefore, the proposed antenna gives a highly competitive performance as related to other works, and also, it is a potential candidate antenna type for 5G communication systems.

Introduction:

Over the past few decades, wireless communication systems have brought a significant impact on the daily lives of human beings. Consequently, nowadays, more and more users connect their devices to the existing networks which are causing a constant increase in data traffic and the need for high-speed networks will keep increasing in the upcoming years. To deal with the ascension of wireless data traffic, the next deployment of wireless communication networks is at a nascent phase, which is stated to be a fifth generation wireless network [1-3]. The emerging 5G communication systems are projected to highly enhance communication capacity by exploiting enormous unlicensed bandwidth specifically, in the millimeter-wave band. It is also expected to be ready to provide and support very high data rates which in turn to a replacement challenge on network requirements as well as in the antenna designs to satisfy the expected data rate and capacity [4-6]. The advancement of wireless communication systems require low-profile antenna types that are capable of delivering astonishing performance over a wide frequencyband. With this regard, the MSPA represents a lucid choice for wireless devices due to their low fabrication cost, lightweight and volume, and a low-profile configuration as compared to the other bulky types of antennas. The MSPA is easy and multipurpose in terms of polarization, resonant frequency, pattern, and input impedance. The patch antennas can be attached on the surface of high-performance aircraft, spacecraft, rockets, satellites, missiles, cars, and even hand-held mobile telephones. Therefore, the MSPA acting a substantial role within the fastest-growing wireless communications industry. However, the depth of the substrate material deteriorates the MSPA bandwidth and radiation efficiency, by boosting surface wave and spurious feed radiation laterally through the feeding line.

An Extensive Pythagorean Fuzzy Method for Group Decision-Making in the Analysis of Balanced Scorecard-Based Renewable Energy Investments with Incomplete Preferences

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Abstract:
The objective of this research is to develop suitable approaches to enhance investments in renewable energy. A unique approach with three stages has also been put forth within this framework. First, the relation matrixes' incomplete preferences are computed. Four distinct decision-makers assess the criteria based on the balanced scorecard for this purpose. In order to finish the relation matrixes, incomplete preferences are used to estimate missing values in this stage. Furthermore, the second phase involves computing the fuzzy preferences while taking consensus-based group decision-making (CGDM) into account. The next step involves using the Pythagorean fuzzy decision-making trial and evaluation laboratory (DEMATEL) approach to calculate the weights of the criterion.

Keywords: Smart grid, solar photovoltaic, renewable energy harvesting, long-short term memory, recommender system.

Introduction:
As information about the drawbacks of non-renewable energy sources and the benefits of renewable energy sources has spread around the world, interest in building a personal energy production system using renewable energy sources is growing daily. Since the 1970s, there has been a shortage of fossil fuels throughout the world, which has raised the cost of electricity. The depletion of fossil fuels and the detrimental consequences of greenhouse gas (GHG) emissions led people to conclude that producing electricity on-site with Renewable Energy Systems (RES) is the most convenient option [1]. Energy helps people achieve their basic necessities, such heating and illumination. However, energy is regarded as one of the most crucial basic commodities used in industrial manufacturing. It is clear that energy is essential to a nation's ability to develop sustainably. As a result, nations devise plans to raise their energy budgets. Investments in renewable energy have been more and more popular worldwide, particularly in the last several years. These energy kinds derive their source from elements of the natural world, like the sun and wind. This circumstance makes it feasible to significantly reduce the nation's air pollution [1].Building automation systems (BAS) are a type of hardware and software that are connected and centralized to monitor and control the environment in commercial, industrial, and institutional buildings. The automation system guarantees the building's operational performance as well as the comfort and safety of its residents by overseeing a number of building systems.

A Synopsis of the Situations, Events, and Use of Sampling Methods in the Computer Science Field

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Abstract:
It is difficult to look at the entire population. Researchers choose a small group, known as a sample, to best represent the entire population in order to save time and money. The population's sample is selected using the sampling technique. There are two kinds of sampling techniques: non-probabilistic and probabilistic. The use of sampling techniques is crucial in research because they aid in decision-making and data analysis across various disciplines. To help researchers choose the best sampling technique for their work, we have reviewed sampling techniques from a variety of angles in this paper. They will determine which sampling technique is most appropriate based on the resources (time, money, effort, etc.) available in the field after reading the review.

Keywords: population, Sample, Sampling, probabilistic, non probabilistic

Introduction:
It is unknown whether the researchers will be able to collect data from the entire population. As a result, selecting a sample is critical. Population refers to the entire set of data from which the researcher selects samples. Due to a lack of time and resources to examine the entire population, researchers use various sampling techniques to draw samples from the entire population [1]. In statistics, survey methodology, and quality assurance, various sampling techniques are used [2]. There are two types of sampling techniques: probability sampling and non-probability sampling. The method of selecting sample components known as probability sampling guarantees that every member of the population has an equal chance of being selected [3]. Different probability random sampling techniques exist. Among the probability random sampling types are: 1) A technique known as simple random sampling gives every member of the population an equal chance of being selected at the outset. The disadvantage of basic random sampling is [1]: Every component of the total population needs to be listed in full. In some circumstances, such as when conducting surveys based on in-person interviews, the process of obtaining a sample may be costly if the factors were biologically dispersed. Estimators' average errors can be quite high. 2) Systematic random sampling is a sampling technique where elements are selected at regular intervals (in terms of time, space, or order)[4]. (3) In stratified random sampling, all members of the population are divided into discrete groups, or strata. These strata are selected in a way that reflects the same characteristics across all population elements [5]. By ensuring that all segments of the population are represented in the sample, this technique aims to reduce the likely samples to those that are "less extreme" because increasing efficiency also increases the likelihood of making a mistake in judgment [6].Stratified random sampling has a few disadvantages, including: (4) Another method that divides the population into samples (units) is cluster sampling. Where each group—referred to as a cluster—must be typical of the population. Which makes the population's heterogeneity evident. However, every unit in the cluster has the same features [8]. (5) Because multistage sampling also divides the population into groups based on geographic location, it can be a sophisticated type of cluster sampling. After that, a cluster or clusters are selected for sampling.

Effectively handling and recovering data with combiners in the Map Reduce architecture

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Abstract:
Take any data structure, such an array, and use either a static or dynamic technique to specify the array's size. Due to the significant memory allocations required for the data structure, this cannot be a general solution for big text files. As the amount of data grows, processing it will become a more laborious process, making even this method more challenging. For big text files, existing techniques like lists and heaps may handle the data efficiently up to a certain point (depending on the RAM restriction). To handle these enormous amounts of data, the solution must propagate throughout the cluster (saving data on the disk) rather than being limited to a single node.Hadoop will deal with all of these major issues using reduce map technique. Computation time and data transmission time limits are typically used to bolster the aforementioned claim. This study proposes an efficient method for huge data processing with combiners, which may alternatively be thought of as tiny reducers or map side reducers.

***Keywords*:** Map Reduce; Cluster; HDFS; Yarn; Combiners; Hadoop

Introduction:
Google has developed hundreds of general-purpose calculations during the last five years to handle vast volumes of unprocessed data, including documents, request logs, and other types of data. These computations are theoretically simple. To finish in an acceptable amount of time, the computations must be spread among thousands of machines because the input data is often vast. The primary concerns should be on how to distribute the data in an easier way and carry out enormous amounts of computing. In order to describe basic calculations while concealing the complex intricacies of parallelization, fault tolerance, data distribution, and load balancing in a library, a new abstraction has been developed. The map serves as the inspiration for the new abstraction, which minimizes the primitives [1][5][7]. Storing and processing huge volumes of data according to the requirement became one of the major challenges in the real world. Hadoop is one of the solutions to the big data problems as the data is completely stored in files and the implementation of these Hadoop concepts will be done efficiently by the combination of HDFS, Map Reduce, Yarn where HDFS supports distributed parallel processing using map reduce and Yarn supports resource management [2]. And the major problem is if we want to process these huge volumes of data in a single node , it is a difficult procedure as we have to distribute the data across many nodes and should be processed in parallel way with the help of map reduce[4].

Ways to adapt lean approaches in SMEs to support Industry 4.0 in the manufacturing domain

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Abstract:

Industry 4.0 promises to boost manufacturing productivity and flexibility, resulting in higher customer value and lower costs. Lean manufacturing has long advocated for principles and tools that emphasize value-added activities, waste elimination, and continuous improvement. Even the most successful lean manufacturing firms will admit that there is room for improvement in terms of efficiency and quality achieved through waste reduction. This review examines how lean principles can help Industry 4.0 achieve higher customer value and manufacturing excellence. Leveraging the opportunities available under the Industry 4.0 umbrella of technologies can help to reduce the nine wastes of lean even further.

Keywords: Industry 4.0; lean manufacturing; umbrella of technologies

Introduction:

In the manufacturing industry, lean manufacturing is a widely acknowledged and accepted system that aims for continuous improvement and labor integration with a clear focus on value-adding activities and waste elimination. The fourth industrial revolution is being ushered in by the integration of industrial internet of things (IIoT) and cyber physical systems (CPS) into the manufacturing environment. The fourth industrial revolution, or Industry 4.0, is leading the way in improving the flexibility and adaptability of production systems. It is also referred to as the industrial internet, smart manufacturing, smart factory, and an integrated industry. The goals of lean manufacturing and Industry 4.0 are to boost flexibility and productivity .The goal of optimizing lean and digital manufacturing has drawn interest in investigating novel approaches for improving production systems that result from the integration of these two systems. Industry 4.0 aims to decrease lead times and expenses while increasing productivity gradually and facilitating cycles of continuous improvement. Industry 4.0 technologies are seen as a way to increase productivity in the manufacturing process while maintaining product quality, but the process of incorporating the technology into the production systems that are already in place and the processes that it can support is still evolving. With the introduction of numerous new technologies and terminologies, it can be difficult for businesses to create specialized implementation plans. The present research assesses the possible avenues for Industry 4.0 to enhance the efficiency of lean manufacturing.

Analysis of Antennas for the Radar Applications

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Abstract:

This paper signifies the distributed electromagnetic simulation for different thin wired antennas or structures mounted on earth or vehicles or space shuttle for communication purposes. A lot of electromagnetic analysis softwares are available commercially. This paper presents some simulation results of different antennas using Wire-MoM based on thin-wire approximation. The method gives frequency domain results of currents and fields which is further converted into time domain for better understanding. Index Terms - Antenna feeds, Antenna measurements, Antenna proximity factors, Antenna radiation patterns, Antenna transient analysis.

Introduction:

Electromagnetic fields can be predicted by experiment, analysis and computation. The last mentioned technique, otherwise known as numerical simulation is the most recent and rapidly advancing. The modeling of electromagnetic processes on computer can help us understand how products work and hopefully lead to better products as in the philosophy of computer-aided design (CAD). The numerical computation for distributed electromagnetic simulation and optimization is the very cost effective than the direct experimental method. For idealized geometry, the calculation of electromagnetic fields generated by power line conductors at each specific location is a trivial algebraic task. However, the presence of man made and natural objects, uneven profile of ground surface, and non-homogeneous conductivity of the ground at different depths affect the resulting distribution of magnetic and electric fields. One of the earliest applications of a numerical electromagnetic (EM) analysis to the antenna design and lightning study [1] modeled a lightning channel attached to a tall structure. A time-domain code was used in that study. A similar time-domain code was also used in a study on induced voltages on a distribution line [2] over perfectly conducting ground. A recent study also employs a similar time-domain code [3] to model the wired antennas with induced current and voltage in each wire and a lightning channel. Moini et al. applied the time-domain approach utilizing the Thin-Wire Time-Domain code (TWTD) [2],[4]. However, more authors have applied the Numerical Electromagnetic Code (NEC-2) [5], a frequency-domain code to lightning electromagnetic pulse (LEMP) studies or lightning surge analysis. Heidler et al. [6] used NEC-2 to 1-4244-2136-7/08/$20.00 ©2008 IEEE analyze induced voltages on conductor loops illuminated by LEMP.

Design of S-Band Microstrip Patch Antenna for Wireless Communication Systems Functioning at 2.45GHz

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Abstract:
Wireless technologies play a major role in remote communication systems and various wireless technologies are used to communicate at these remote locations. Technology is now all at hand. In this paper, a microstrip patch antenna in the 2.45 GHz S-band is designed and studied, which can be used in future wireless applications. The main goal of this antenna is low return loss, bringing the VSWR close to 1, to improve the gain, directivity, and efficiency of this antenna compared to other antennas. The said antenna has been designed and simulated using computer simulation technology software, where Roger RT duroid 5880 is used as substrate material. On the Roger RT-5880, the recommended antenna dimension has a height of 1.5 mm. This material has a relative permittivity that is equivalent to 2.2. Both the patch and the ground are made of copper, and the thickness is 0.035mm. The following findings emerged from running these simulations: resonance frequency of 2.45 GHz, return loss ( ) of-12.542 dB, bandwidth of 0.0349 GHz, gain of 8.092 dB, directivity of 8.587 dBi, and an efficiency of 94.24%. The findings that were acquired using this proposed antenna were superior to those that were obtained using existing antennas and reported in contemporary scientific journals and conferences. As a consequence of this, the requirements of many wireless communication applications are likely to be met by this antenna.

Introduction:

Antenna is a device that matches the characteristic impedance between the source terminal and the load terminal. It is referred to as an impedance matching device. During transmission, the antenna changes electrical signals into electromagnetic waves. During reception, it does the opposite, turning electromagnetic waves into electrical signals. This process is referred to as transduction [1]. Antenna design is made more difficult in the present day due to the increased demand for wireless communication devices as well as the downsizing of these systems. Microstrip patch antennas are well known for their many benefits, including their low profile, low cost, lightweight, ease of production, and conformance [2]. However, these antennas also have drawbacks, including limited bandwidth and poor gain. In a significant number of applications, such as those dealing with security for the government, restricted bandwidth is required. The microstrip patch antenna that is rectangular can be in a variety of shapes as well, including square, circular, triangular, elliptical, etc which is given in figure 2. Many methods may be utilized to increase the height of the substrate to prolong the efficiency and bandwidth, but there is one issue with doing so.

Survey on Artificial Intelligence for productive Manufacturing

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Abstract:
Additive manufacturing of three-dimensional objects are now more and more realised through 3D printing, known as an evolutional paradigm in the manufacturing industry. Artificial intelligenceis currently finding wide applications to 3D printing for an intelligent, efficient, high quality, mass customised and service-orientedproduction process. This paper presents a comprehensive survey of artificial intelligence in 3D printing. In the aspect of service and security, intelligent demand matching and resource allocation algorithms enable a Cloud service platform and evaluation model to provide clients with an on-demand service and access to a collection of shared resources. We also present three machine learning algorithms to detect product defects in the presence of cyber-attacks. Based on the reviews on various applications, printability with multi-indicators, reduction of complexity threshold, acceleration of prefabrication, real-time control, enhancement of security and defect detection for customised designs are seen of good opportunities for further research, especially in the era of industry 4.0.

Introduction:
Today 3D printing (3DP) is known as one of the advanced manufacturing technologies and also a revolutionary progress for the next-generation manufacturing industry. It refers to the layer-basis additive manufacturing of three dimensional object using digital data [1, 2]. The prefabrication stage aims to enhance the reliability and feasibility of 3DP. A 3D printable model designed through Computer-Automated Design (CAD) or 3D scanning is presented as triangle meshes in Stereo lithography (STL) format and then converted into sliced layers with G-code to instruct a 3D printer [3]. The prefabrication of image-based slicing, path planning, support generation, orientation, repairing and packaging can significantly speed up the construction time and reduce the cost and material waste .To date, AI has been developed in various forms and applied successfully in a wide range of fields, including aviation, computer science, finance, education, healthcare, medicine, transportation, industrial manufacturing and so on. It provides various algorithm, theories, methods and offers great potential to transform the current manufacturing technique under the situation of ever-increased data repository. For example, machine learning (ML) is one representative of AI, which enables machines to learn and improve autonomously.

Biomedical Signal and image Processing in Matlab

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Abstract:
Nowadays, the techniques for the analysis and image processing are usually can be found wide spread in the medicals industry. The techniques use in the medical applications by using the image data. The image data will be used to obtain the process details in imaging patient. All the information obtained from the medical images has become a vital part of nowadays patient. The images generate are complex. Matlab is one of the mathematical models for the biomedical signal and processing. The image processing nowadays has become a mainstream wave. The image processing tools in the Mathlab provides a set of reference which is include the graphical tool, standard algorithms, analysis visualization for image processing. By using mathlab, user can create and perform the image processing process such as image debluring, noise reduction, feature detection and image enhancement. Keywords: Biomedical Imaging, Matlab, , Signal Processing.

Introduction:

One of the rising issue of technology is Digital signal processing (DSP). DSP is a branch of information science and technology, specifically on the methods and techniques for processing digital signals. The signals processed in two ways which in time and in magnitude, and therefore fit for computer manipulations. Sensor is a device that responds to a physical stimulus and transmits a resulting impulse. Sensor can be in different type such as heat, light, sound, pressure, magnetism, or a particular motion. The biomedical imaging nowadays is more focuses on the capture the images process for the therapeutic and diagnostic. The biomedical imaging technology is rarely used to utilize the patient organ such as ultrasound, MRI, CT scan, and light endoscopy. Biomedical imaging used to access the organ condition in the body or the issues in the body. It easier to monitor the patient for treatment and diagnostic evolution. [1, 2, 3] Today the software that used to perform biomedical imaging re-inverted since the x-ray was inverted on year 1895. The modem x-ray nowadays just need milliseconds of exposure time and used the solids state electronics to produce a high quality images and resolution. Today, the digital x-ray is enabling all the images to be more easily shared and compared. Matlab is one of high-level technical software that used to develop the algorithm and computing languages. Matlab is easy to be modify and easy to use when it deals with large matrices. Math lab also use only the language script to ensure all the statistical test and the matrix are easy manipulation. The required initial data will be taken and be customized to scanner and develop by the Matlab code to filter the optimized results. [6] After obtained the output, the Matlab will slice the information and construct the 3D image processing.

A Brief study and Survey on Wireless Network Security

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Abstract:

A wireless network is used to connect various wired organizational structures and provide connectivity within the organization for employees to move freely by avoiding the hurdle of a physical network. Maintenance of WLAN security is crucial to an organization because WLANs are directly linked to the core organization's network. In this paper, we reviewed the architectures and protocols of wireless communication, security issues, and type of threats used to launch an attack as well as their solutions. Finally, we discuss open research for future development to make a secure wireless network and safe for data transfer.

Introduction:

Nowadays, the Internet becomes the basic need of human life and is used not only for entertainment purposes, but it helps in doing routine activities like fund transfer, paying bills, ticket reservations, educational research, learning perspectives, business trade, media coverage, etc. If we defne the Internet in a single line then it should be, "network of networks known as internet". If we talk about just a network, then what exactly the defnition of a network is? Where it came from? So, the answer is: two or more than two nodes (sometimes known as system or computer systems) are connecting to share crucial information or resource. In 1961, Leonard Kleinrock proposed an idea named ARPANET (Advanced Research Project Agency Network) in his research titled "Information Flow in Large Communication Nets" [1].

An emerging field of mobile computing is wireless sensor networks. The ad-hoc environment presents a number of difficulties. Their financial situation is a contributing factor in this. Usually, they are installed for short-term purposes, during emergencies, or just when there aren't enough resources to set more complicated networks. Consequently, ad-hoc networks create new circumstances and difficulties in every area of networking. Effective ad hoc operations cannot be provided by conventional network technologies alone. Due to the wireless nature of contact and the lack of any security architecture, there are numerous security risks. In this study, we attempt to analyze the needs of the ad hoc context. Our focus is on ad hoc routing. Here, the most pressing issues in these domains have been addressed [2]. We have attempted to address these questions, which have been active research topics. Since wireless communication will be used, any intruders can simply access communications. Wireless networks are not secure enough, and the control

Expanded polystyrene lightweight self-compacting concrete's performance in composite slabs

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Abstract:

The importance of composite constructions has increased since they can be built more quickly and affordably. Cold-formed corrugated profile sheets, which also function as permanent formwork, are typically used to create composite sections. Minimizing self-weight is a necessary goal to encourage the use of composite parts in the building sector. It also makes it easier to save on building costs. Shear connectors are available in composites labs for composite action. Self-compaction concrete would be perfect for these kinds of locations because it would be challenging to pour traditional concrete there. In an attempt to accomplish the aforementioned goal, research has been conducted on expanded polystyrene lightweight self-compacting concrete in composite slabs. Expanded polystyrene beads were added to the coarse aggregate in varying amounts to produce the light-weight concrete. A push-out test and a four-point bending test were conducted on the composite slab. According to the test results, the lightweight expanded polystyrene self-compacting concrete composite slab performs better when the slab's thickness is decreased. The shear connector minimum spacing was executed well. It was possible to regulate the shear fracture and the concrete's tendency to de-bond from the profiled steel sheet.

Keywords: Composite slab , Lightweight,Profiled steel sheet,SCC,Shear connectors.

Introduction:

Globally, composite sections—such as composite beams, columns, and slabs—are becoming more and more important. In contrast to traditional reinforced concrete construction, composite construction is mostly preferred in modern construction concepts, particularly for multi-story buildings. Corrugated profile sheets that are cold-formed and serve as permanent formwork are typically used to create composite sections. Shear connectors are utilized to enhance the composite activity between the concrete and profile sheet. A substantial amount of research has been conducted in the field of composite building. The four-point bending test was used to examine the structural behavior of composite beams (Nie et al., 2008). According to the study, partial shear connections work better in the continuous composite beam's maximum bending force zone. Numerous researchers conducted an experimental study on composite slabs (Abbas et al., 2015; Baskar and Jeyasehar, 2012; Chen et al., 2011). The study's test results showed that the composite slab is highly ductile and capable of withstanding shear. The push-out test was used to demonstrate both analytical and experimental research on the shear studs (Bouchair et al., 2012; Springemic et al., 2013; Prakashetal., 2012). Self-compacting concrete (SCC) (Lawan et al., 2016) and fiber-reinforced concrete (Gholamhoseini et al., 2017; Revathy and Kumar, 2017) were used to build composite constructions through the progress of construction materials. In order to encourage the building sector to employ composite parts, it is necessary to aim for self-weight minimization.It also makes it easier to cut building costs. Shear connectors are supplied for composite action in composite labs. Conventional concrete would be difficult to pour, so self-compacting concrete would be perfect in these situations. An investigation on expanded polystyrene light weight self-compacting concrete (EPLW SCC) in composite slabs has been conducted in an attempt to meet the aforementioned goal. This study examines the expanded polystyrene light-weight self-

Experimental Investigation on Geotechnical Properties of Marine Clay Modified Using Foundry Sand

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Abstract:

The process of controlling compaction, adjusting proportions, and/or adding appropriate admixtures or stabilizers to the soil in order to increase its stability or bearing capacity is known as soil stabilization. This study's primary goal is to find out how foundry sand affects the marine clay's geotechnical characteristics. On marine clay, the experiments were conducted. The tests were carried out on soil that had been mixed with foundry sand in varying proportions, and the outcomes were contrasted with those of blank soil. Maximum dry density, ideal moisture content, California bearing ratio, and unconfined compressive strength are among the data that are shown. According to the study, added foundry sand raises the CBR value of the soil. The suggested method can be applied as a successful foundry sand disposal strategy as well as a method for stabilizing soil.

Key Words: Stabilization, Marine clay, Foundry sand

Introduction:

An engineering goal can be achieved using physical, chemical, biological, or a combination of methods known as soil stabilization. When the soil that is available for construction is unsuitable for the intended use, it is necessary. In earth structures, soil stabilization is utilized to raise the soil mass's shear strength while lowering its permeability and compressibility. Additionally, it raises the foundation soils' bearing ability. Marine clay is the soil type found in the ocean floor. It is even able to be found on land. Saturated marine clay has distinct characteristics from both dry and moist soil. The nature of marine clay is microcrystalline, and the soil contains both non-clay minerals like quartz and feldspar as well as clay minerals like chlorite, kaolinite, and illite. The proportion of organic matter in the soils is higher, which serves as a cementing agent. Because of the uncertainty around their performance, marine soils in particular can pose significant challenges to the construction of pavements. They are the most vulnerable to issues caused by variations in moisture content and are frequently unstable beneath a pavement. as wet, marine soils often expand and become mushy, but as they dry out, they may contract and become rigid.Marine clay deposits can be found around the world in a variety of offshore and coastal locations. India, a peninsular nation, has a sizable portion of its territory covered by coastal regions, which have historically served as the home of a sizable portion of the population.The clays found in the sea arediscovered in certain regions of Gujarat as well as the states of West Bengal, Orissa, Andhra Pradesh, Tamil Nadu, Kerala, Karnataka, and Maharashtra. These soils are often expansive in nature, very saturated, soft, sensitive, and normally consolidated. They also typically have low densities and low shear strengths. Stabilization with foundry sand is an optional solution to the problem of bearing capacity failure and excessive settlement that might arise from construction

Flexural Behaviour of Recycled Aggregate Concrete Using Fibers and silica fume

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Abstract:
An environmentally friendly method of reducing the quantity of natural resources harvested and the harmful impacts of waste concrete on the environment is to include recycled concrete aggregates in structural concrete. Evaluation of the compressive and flexural behavior of recycled aggregate concrete (RAC) and normal concrete (NC) that had been modified with silica fume and steel or polypropylene fibers (PPFs) was the aim of this study. Following several axial compression and three-point bending tests, the effects of the silica fume and fiber coupling on the modulus of elasticity, fracture toughness, compressive strength, and failure mode of the RAC and NC were investigated. The thick steel fiber performed poorly in terms of interfacial bonding with the cement paste than the PPF, according to the results. However, the inclusion of silica fume strengthened these interfacial bindings, which improved the compressive and flexural behavior of the fiber-reinforced RAC. Furthermore, silica fume and steel fiber had a better coupling effect than silica fume and PPF. For the compressive and flexural strength of steel-fibre reinforced RAC, a 10% silica fume content achieved through an equal quantity substitution of cement is ideal, according to synthetic considerations of performance improvement and economic cost.

Keywords: Recycledaggregate,concreteSilicafume,Steelfibre,Polypropylenefibre, CompressionFlexure

Introduction:

The swift advancement of urban development in emerging nations has resulted in a buildup of building debris, particularly concrete waste, which poses a significant environmental hazard. For example, Tai et al. [1] reported that over 15 billion tons of construction and demolition waste (C&DW) were created in China in 2015, based on the most recent information provided by the Chinese government. In addition to requiring storage space, the conventional landfill disposal of these C&DWs will result in increased carbon emissions [2].Research has looked into the possibility of replacing natural aggregate in concrete with recycled aggregate in an effort to decrease the negative impacts of C&DW [3, 4]. Grinding, sieving, and cleaning the C&DW can result in recycled aggregate. This endeavor is among the primary measures that tackle the buildup of C&DW while simultaneously mitigating the grave environmental consequences stemming from the scarcity of natural aggregate resources [5–7].The mechanical characteristics of recycled aggregate concrete (RAC) combined with recycled aggregate have drawn the attention of numerous researchers lately [6, 8–12]. It was discovered that when the replacement rate of recycled aggregate in RAC increases, its compressive strength, flexural strength, and elastic modulus decrease relative to normal concrete (NC). This is primarily because recycled aggregate has a high porosity, high water absorption rate, and low strength [8–10]. According to reports [13–15], there was minimal to no detrimental effect on the strength, workability, or fracture qualities at recycled aggregate use levels of 25–50%,with the exception of Young's modulus being somewhat lowered. However, the compressive performance of concrete can be considerably decreased by substituting more than 50% of the natural aggregate with recycled aggregate [15–17]. Moreover, the presence of contaminants in recycled aggregate, such as bricks, wood, and glass, has a major impact on the mechanical performance of RAC [18]. Researchers have begun to examine RAC admixtures in an effort to enhance the mechanical characteristics of

A Support Vector Machine Based Effective Intrusion Detection Framework Using Nsl - Kdd Dataset

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Abstract:
Intrusion detection systems are now essential for a system's security and privacy. They also play a significant part in network security. Support vector machines (SVM) have been used recently to offer practical intrusion detection system solutions. SVM is a state-of-the-art machine learning technique with several classification versions; its performance is dependent on choosing the right parameters. In this work, we use the NSL-KDD dataset to propose a model based on linear and nonlinear kernel SVMs. The tabular description of SVM parameters is provided. Our model achieves the best result, 100% accuracy with both for quadratic and cubic SVMs, IDS, using the NSL-KDD dataset.

Keywords: Intrusion Detection System (IDS), Support Vector Machine, Linear and Nonlinear Support Vector Machines

Introduction:
Intrusion detection is extremely necessary to stop the intruders to interrupt into or misuse our systems [Campos, "*et al."*(2005); Zainal "*et al."*(2006)]. The increasing range of threats against and vulnerabilities of a diverse set of targets, such as military, government and commercial network systems, require increasing situational awareness and various cyber security measures [Kabiri and Ghorbani (2005); Depren "*et al."* (2005), Inayat*"et al."*(2016)]. Intrusion detection system is a type of security management system for computers and networks. An Intrusion Detection system gathers and analyzes information from various areas. The intrusion detection systems are critical components in the network security to identify possible security breaches within a computer or a network. Classification [Benwal and Arora (2012)] is the category that consists of identification of class labels of records that are typically described by set of features in dataset. An Intrusion Detection System (IDS) is a software application or device that monitors the system or activities of network for policy violations or malicious activities and generates reports to the management system. Here, the NSL-KDD dataset [Jabez and Muthukumar (2015)] is used for the experiments and two types of class are present out of which, one is normal and another one is anomaly. All the experiments are done using MATLAB. There are good numbers of research papers conducted using the NSL-KDD dataset for developing models for IDS and varieties of methods also exist. Some of methods are summarized here. Here kmeans data mining algorithm is used to detect normal and attack data in order to reduce the false negative rate. The Weka tool is chosen for simulation and Random Tree is selected as classifier to know the data as attack or normal. The authors have used least square support vector machine (OA-LS-SVM) method to tackle various types of attacks in ID using KDD 99 dataset. Two levels IDS is used to allow the system to analyze network traffic and the detection levels are coarse-grained IDS and fine-grained IDS. VFDT has proved its efficiency in both generalization tree and new attacks detection. The authors are focused on development of online IDS using modified Q-learning algorithm and RST having 98% accuracy. The Random forest classifier is outperformed among all the classifiers using performance Matrices (precision, recall, F1-Score and accuracy) *i.e.* accuracy of 99%. Both the feature selection and classification methods are used for anomaly detection.

An International Perspective on the Development, Obstacles, and Policies of Indian States Regarding Renewable Energy

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Abstract:
Renewable energy technologies are gradually replacing traditional power generation methods worldwide in order to both mitigate the energy issue and produce clean, green energy. As a result, it's possible that in the near future, renewable energy technologies may compete on an equal footing with conventional energy sources. The global power system market will soon need to be balanced again, necessitating an understanding of both past and present developments pertaining to the power market, pricing, and supply-demand equilibrium with an emphasis on renewable energy sources.

Keywords: Deregulated power system, levelized cost of energy, power system market, regulated power system, renewable energy generation.

Introduction:
When the negative effects of conventional and fossil fuel energy severely damaged the world environment and economy, power systems and renewable energy coherence were established. The traditional power system generation, which came from fossil fuel sources, is set to reach a dead end with significant drawbacks because to the unrealistic increase in power demand, which would sway the entire world towards renewable energy sources. Development of renewable energy has progressed concurrently with the growth of the power system network, from the late 1990s deregulated structure to the vertically integrated system. It has also measured the progress of India and its state towards the accomplishment of the SDGs [4]. The energy demand in India is drastically increasing, and by 2030 India's total energy demand will be more than double while electricity demand will almost triple than today [5]. Moreover, current conventional sources are responsible for climates as well as unlimited in capacity. Hence, an alternative form of the generation which is cleaner and unlimited will be indispensable. RE installed capacity accounts for 22.5% [6] of India's total installed capacity for power production as of July 2019 [7]. India, the nation with abundant natural resources, has the immense potential for generating electricity through RE resources. The current day technologies have enabled for utilizing these renewable resources in a more efficient way of generating electricity [8].

Methods of Sentiment Analysis for Social Media Surveillance

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Abstract:
The use of social media in social interactions has grown essential. It affects people's intents, behaviors, values, and beliefs in addition to their attitudes and behaviors. Social media serves as a forum for interpersonal connection as well as a channel for users to express ideas about goods and services, politics, and current affairs. Owing to its popularity and broad reach, a massive volume of user evaluations and opinions are created and shared on social media platforms on a regular basis. Thus, it is essential to transform social media material into information, themes, and important concepts in order to create knowledge and develop strategies that aid in managerial, strategic, and operational decision-making. The formalization for analyzing and creating views and feelings is opinion mining and sentiment analysis.
Keywords: Sentiment analysis, Naive Bayes Classifier, Social media, Lexical knowledge base, Decision tree.

Introduction:
With the explosion of internet there is an abundance of data available on-line, they can be numerical or text fileand they can be structured, semi-structured or non-structured. The internet is replete with reviews, comments andratings by virtue of the developing prominence of sites like Amazon.com and Epinion.com, where individuals canexpress their sentiment on various items and rate them. Many researchers and practitioners aim attention at theapproaches and techniques to extract useful information from these data lately. Advancement in computertechnology along with many retrieval techniques and tools have been proposed according to different data types.In addition to data and text mining, there has seen a growing interest in non-topical text analysis in recent years.Sentiment Analysis is one of them. Sentiment analysis, also known as Opinion Mininghelps in identifying andextracting subjective information in source materials and categorizes them as positive, neutral, or negative.In recent years, more attention has been paid to the problem of sentiment classification [1]. Using appropriatemechanisms and techniques, the vast amount of data generated online can be processed into information tosupport operational, managerial, and strategic decision making [2].Sentiment analysis aims to identify andextract opinions and attitudes from a given piece of text towards a specific subject [3].Social media measurement or ‘social media monitoring’ is concerned with the active monitoring of social mediachannels for extraction of useful information about a company or organization, usually tracking of various socialmedia content as a way to determine the volume and sentiment of online conversation about a brand or topic.Methodologies which can speedup processing and reduce latency are required for real time analysis of socialmedia application. The task of mining user opinions from social media data is not straight forward; it can beaccomplished in different ways. Sentiment analysis provides new techniques of classification. The objective could be a basic polarity classification (positive or negative), or a multi-class one (like the 5 star classification). Sentiment analysis can be done on a global topic level or on a more specific level. Global topic level analysis provides general opinion on a particular product being taken into account and a specific level analysis fetches opinions based on the product’s aspects. The sentiment found inside remarks, feedback or critiques give helpful pointers to a wide range of purposes. These sentiments can be categorised either into two categories: positive and negative; or into an n-point scale, e.g., very good, good, satisfactory, bad, very bad. In this respect, a sentiment analysis task can be

Improvement Of Bearing Capacity of Loose Sandy Foundation Soils Using Grouting

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Abstract:
Since unstable soil at shallow depths causes related challenges and poor engineering qualities, building operations in coastal locations frequently require deep foundations. Shear failure and excessive settlements are caused by the foundation bed's extremely poor bearing capacity. Additionally, these places' high water tables and shallow top sandy layer limit the depth of the foundation, thus lowering the safe bearing capability. This essay explores grouting as a potential remedy for coastal areas' foundation issues by enhancing the shallow-depth soil's qualities.

Keywords **-** Grouting; sand; cement; shear strength; bearing capacity; settlement.

Introduction:
It is frequently necessary to enhance the soil while building on unstable ground in order to guarantee the stability and safety of the neighboring constructions. Numerous techniques, including vibro-flotation, compaction piles, compaction with explosives, excavation and replacement, well point systems, reinforced earth, grouting, etc., can be used to enhance the ground in granular soils.The best approach will depend on a number of variables, including the soil's characteristics, the amount of compaction that is necessary, the kind of structures to be supported, and the maximum depth of compaction. Many foundation issues can be successfully resolved by soil compaction, which is particularly helpful in lowering total settlements in sands.But in order to apply soil compaction techniques effectively, a geotechnical engineer must be aware of every aspect that affects the compaction process. Because of the poor condition of the soils, particularly their low bearing capacity, stabilization is required to improve their qualities.Soil compaction is inherently influenced by various factors such as soil type, gradation, and vertical effective stress.In general, homogenous soil does not compact as much as well-graded soil does, and moisture content is an important factor [1]. Only maximum depths of 10 to 20 meters can be reached with dynamic compaction, and shallow water tables will not produce satisfactory results [2].In construction, soil stabilization—the injection of cement grouts under pressure—has become a common practice. Grouting is a widely used technique in structural engineering and foundation engineering that is used to reinforce existing foundations beneath buildings and structures as well as to strengthen the soils in their beds. The parameters for determining whether a soil may be impregnated with cement grout are the penetrability of the soil, which is defined by the permeability and the dispersivity of the cement - water suspension, which is defined by the distribution of grain sizes in the suspension.The strength, modulus, failure strain, and mechanism of failure of sand are all significantly changed by pressure grouting. Estimating the properties of the grouted sand from the constituent properties that will enable appropriate grout selection would be both useful and practical. The cohesiveness of the grout, the adhesion (bonding) between the grout and the sand, and the sand's characteristics all affect the compressive behavior of grouted sand. Adhesion or bonding refers to the interaction of two materials at their interface, either chemically or physically, or both. Although it is not well understood, the strength and kind of this

An International Perspective on the Development, Obstacles, and Policies of Indian States Regarding Renewable Energy

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Abstract:
Power inverters are used to integrate photovoltaic power (PV) into the grid. However, the inverters cause PV to lose some of the benefits of conventional power sources, like lower inertia, reactive power regulation capabilities, and fault ride-through capability, which are beneficial to grid stability. This study presents a DC voltage feedback control method that may make a motor-generator pair (MGP) follow the variations of a PV source after introducing the power angle characteristics of MGPs, evaluating the features of PV, and analyzing MGPs current control methods. The following outcomes of an experimental analysis of the idea are reported: (1) A DC voltage feedback control approach can be used by an MGP system to track the power fluctuation of photovoltaics. (2) The PV can have a self-synchronization characteristic because of this feedback.

Keywords: Grid Connection, Motor-generator pair (MGP),Renewable energy, Self-synchronization characteristics.

Introduction:

Building a power grid that is nearly entirely powered by renewable energy is currently a goal put up by several nations[1-4].Nonetheless, there has been a focus on the grid's stability features as the amount of renewable energy in the system has grown. A synchronous generator's rotor moment of inertia can both contribute and receive energy from the power grid in a conventional power grid, assisting in preserving the grid's frequency stability[5]. By altering the excitation current, which seldom influences the active power transmission, the synchronous machine's excitation system may actively control its reactive power output[6]. The synchronous machine's ability to actively preserve the power grid's stability is made possible by these features[7]. Since renewable energy has not yet reached a significant level in the system, many synchronous units are still needed to maintain the voltage. Renewable energy will have to supply its own voltage reference once it becomes more widely distributed and grid stability will decline as grid-integration inverters gradually replace synchronous generators. Additionally impacted will be the operational stability of grid-integration inverters for renewable energy[9]. Consequently, it is crucial to conduct research on how to enable renewable energy to actively support grid stability[10].

Education Methods for Successful Teaching In Crazy Cognitive Maps

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Abstract:
As a result of its many applications to society, Fuzzy Cognitive Map is becoming more and more important in the field of data mining. Nonetheless, the research community discovers that Data Mining is a challenging subject. In order to accomplish the FCM learning outcome, the primary aim (objective, goal, or result) of this work is to provide a straightforward knowledge structure architecture for an efficient classroom (learning platform). The building is done with great care following surveys and evaluations conducted across all AMET University branches and the acquisition of the knowledge structural model. Finally, the performance of this model is assessed, and the findings are reported.

Keywords- Fuzzy sets, Cognitive maps, Ontology

Introduction:
The main goal of Mathematics education in schools is the Child's thinking, clarity and thought. Mathematics education can be classified into three broad categories. They are Survival Mathematics (2) Mathematics for use (3) Mathematicians Mathematics. Survival Mathematics is the one which we need in order to go about our business and make good use of our leisure time. We almost always have to use it in a situation that requires an immediate response paying a bus fare, deciding the date for the completion of a contract, choosing the right camera exposure. The second one is Mathematics for use. This extends from simple skills .Such as decimal arithmetic up to advanced topics, such us the use of differential calculus. It describes all the Mathematics that some people need in order to do their work successfully. Mathematics is also an essential tool for the scientist and this has been used to justify the inclusion of particular Mathematics topics in curriculum. The third category contains definitions, proof and abstract structures. Most curricula contain something of this kind of Mathematics. There are other aspects of Mathematician's Mathematics. Teachers can instruct pupils using a variety of approaches.

This article offers a teacher's viewpoint on leading a conversation with a group of exceptionally brilliant and gifted kids. I conducted participant observation and ethnographic interviews with a teacher who was employed in a special program to study him. I described the knowledge and abilities obtained from prior experience that defined his instruction using the idea of professional practical knowledge. His approach to leading talks was centered around eight thought and action patterns. To illustrate his instruction, I arranged these patterns and their subroutines into a cognitive map. I go over the cognitive map and the study's implications for future research as well as how teachers of brilliant kids should be prepared.

Speaker Identification Accuracy Improvement Using Blstm Neural Network

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Abstract:
In this work we analyze speaker identification accuracy on Lithuanian speaker dataset LIEPA.This dataset consists of 370 Lithuanian speakers reading given text samples. We perform speaker identification with HMM classification and then repeat the same test with different types of LSTM and BLSTM neural networks. On the given dataset we experimentally observe speaker identification accuracy improvement from 3% to 6% compared to best HMM implementation.

Keywords:HMM; BLSTM; speaker identification.

Introduction:
Speaker identification is one of the more challenging tasks, because of the nature of human voice variability for each individual speaker. Not only speech signal varies between different speakers, utterances among same speaker samples differ as well. On the other hand, person recognition by voice is very attractive, because it does not require expensive equipment to collect data, compared to other biometric identification means, like iris scanners or fingerprint readers. In the field of biometric recognition by voice, most widely used method for classifying speaker is Hidden Markov Models (HMM). In the light of the new breakthroughs in deep learning and building on the success of language recognition with deep learning, we find that these techniques can be successfully applied to speaker recognition tasks. In this paper we show how we can use neural networks and deep learning to improve speaker identification accuracy compared to HMM. We use grid search method to find best neural network hyper-parameter configuration and then test it for highest speaker identification accuracy.

Hidden Markov model is used in variety of tasks, and performs very well we have data like voice samples. E.g. to predict the unknown outcome, in this case speaker, who is saying particular utterance. As mentioned previously, this particular field was explored deeply by number of different authors

To highlight some of the research done in the field we can reference following authors, with identification accuracy:

- 97,4% on dataset with 5 speakers (Deshmukh S.D., Bachute M.R., 2013);
- 100% on dataset with 11 speakers (Dovydaitis, L., Rasymas, T., Rudžionis, V, 2016);
- 84,5% on dataset with 20 speakers (Mahola, U., Nelwamondo F. V., Marwala, T., 2007);
- 100% on dataset with 40 speakers (Abdallah, S. J., Osman, I. M., Mustafa, M. E., 2012);

There are several different implementations of HMMs. Below listed works use Gaussian mixture models and some Universal background model to calculate HMMs. Identification accuracy:

- 96,69% on 11 speaker datasets (Bawaskar, A. S., Kota P. N., 2015);
- 95,45% on dataset with 22 speakers (Jayanth, M., Roja, R. B., 2016);
- 92% on dataset with 33 speakers (Meglouli H., Khebli A., 2015);
- 61,9% on dataset with 42 speakers (Ganjeizadeh, F., Lei, H., Maganito, A., Pallipatta, G., 2014);
- 67,5% on dataset with 50 speakers (Zheng, R., Ulang, S., Xu, B., 2004)

A Cloud Computing Privacy Policy Self-Adaptation Scheme Based on User Requirements

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Abstract:
Software as a Service (SaaS) can seldom preserve users' privacy in a dynamic environment. Thus, maintaining control and management over privacy is a key objective for SaaS. It is unclear whether the composite service satisfies the user privacy requirement once the participant is replaced. In order to improve user privacy when a service participant changes in the composite service, we suggest an automatic update mechanism for privacy policies in this paper. First, we model the rules for service variation and privacy. Second, the privacy policies are automatically generated through the negotiation between the service composer and the user, in accordance with the service variation rules. Thirdly, we use the experiments to demonstrate the applicability and feasibility of our method. The ratio of successfully checked service variations by the monitor is 81% when the service quantity is 50. Additionally, 93.6% of the time, the privacy policies are updated correctly.

Keywords: SaaS service, feasibility,privacy policies update,applicability

Introduction:

A shared pool of reconfigurable computing resources (such as networks, servers, storage, apps, and services) that can be quickly provisioned and released with little management work or service provider interaction is made possible by the cloud computing model . To put it succinctly, privacy refers to an entity's right to choose when, how, and how much of its private information it will disclose. The definition of privacy protection in cloud computing is users' ability to prevent sensitive personal data from being gathered, used, disclosed, and kept up to date by cloud service providers . Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS) are the components of cloud computing. Traditional Web services, such as Software as a Service (SaaS), offer applications through service composition. It is possible for a service participant to fail or not meet the functional requirement during the service composition process. Consequently, it is necessary to replace the service participant . The privacy data is kept in the cache of the original service when it is replaced during runtime. These private data should be instantly and automatically erased in order to stop them from being revealed. Furthermore, it's possible that the new service user won't meet the user's privacy requirements. Motivation SaaS is a transparent interaction and collaboration computing system . During cooperative interactions, privacy data are shared and subsequently stored or utilized by service users. When a user switches services, they lose control over their personal information, which can easily result in the disclosure of private information . As a result, there are two problems that must be resolved when one service (S1) is replaced by another (S2); To guarantee that the user's privacy data can be erased instantly, the service S1 privacy policy needs to be updated.2) In order to stop the actions of the service S2 from revealing user privacy information, the privacy policy of the service S2 must also be updated. We provide a detailed example of the first two problems using an e-commerce scenario. In this case, the composite service includes C, Amazon (A), Mike, Seller (SE1 and SE2), Shipper (SH), and Bank (B). Specifics are displayed in Fig. 2. Through service composer C, Mike wishes to buy some appliances from SE1, a service provider on Amazon. The non-VIP seller on Amazon is called SE1. Assume that the actual name, office number, and address (without community) are -λ,, and, respectively. Mike's requirements for privacy as an Amazon non-VIP seller are as follows:1) If his true name is revealed, only his work phone number and address—not the

Software Defined Networking's Load Balancing Mechanism

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Abstract:
Defined Software Networking is a flexible method of networking that fixes problems with the current network infrastructure and disconnects the data forwarding and control planes of system equipment. More precisely, the flight path of network advancement is determined by software-defined networks flow using the CCM (Centralized Control Method). SDN (Software Defining networking as a method involves formulating, organizing, and supervising programs designed to alter the current regrettable situation. It has been applied in various contexts, such as Data center systems and campus networks. We have discussed the idea of Software Defined Networks (SDNs) , including their design and uses in this survey paper. According to the survey, SDN load balancing has improved in intelligence and efficiency decreased the overhead associated with gathering statistics, and maintained improved data rates for QoS (Quality of Service). Furthermore, we examined the Load Balancer's direct routing-based algorithms and contrast with the round-robin method. Additionally, we've examined and contrasted the prior research to obtain a better understanding of the load balancing concept.

Keywords: Defined Software Networking, CCM (Central Control Manner), Data center systems and QoS (Quality of Services)

Introduction:
Fast networking is now necessary for internet applications, which generates a lot of traffic and launches a variety of unique, dynamic apps and services. This network management increases network complexity and is more concepts that are challenging for the network administrator to handle similar to virtualization of networks, interchangeable data inserted. The setup and implementation of the network requires knowledgeable employees. The exchanges among network nodes, such as switches and routers, are intricate. Simulation is necessary for system-based approaches of components, but it is challenging because of programming interfaces to obtain .Since the supervisor provides software, the controller in an SDN (Software Defined Network) is crucial to enhancing the control plane and keeping an eye on network behavior, system interfaces and upkeep of the global perspective of the network. This way, new roles and administration of several applications are able to complete the task plane of data transmits in standard flows, enabling the protocols resulting from the manager, and limitations are imposed by the controller on each successive flow through of the user-defined command inquiries. A software-defined network's advantages are lost as a result of the network's controller failing . The information is transferred between locations in the form of digital packets via the transport network's protocol and distributed control from the router and switches. Older IP (Internet Protocol) networks are complex but widely used, making maintenance difficult. By dividing the networks use a different plane than the system hardware, which are responsible for the system's advancement, vertical integration breaks down.

AI-Powered Recommender System for Harvesting Renewable Energy in Smart Grid Environment

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Abstract:
The electrical grid has already made the shift to a Smart Grid (SG), which is more adaptable, intelligent, and dynamic. Its functions include load management, energy forecast, increasing the amount of renewable energy generated, future planning, and operations. However, because more and more goods and cars are becoming electric, there is a significant disparity between the supply and demand for energy. In order to manage this demand response gap, renewable energy harvesting, or REH, is essential. REH uses energy produced from a variety of renewable energy resources, including wind and solar photovoltaic (SPV). There are numerous studies in this area. They haven't been properly utilized yet, though. Thus, the AI-RSREH approach—that is, the AI-powered Recommender System for REH in residential homes—was presented in this study.
Keywords: Smart grid, solar photovoltaic, renewable energy harvesting, long-short term memory, recommender system.

Introduction:

Smart Grid (SG) has emerged as a crucial technology that facilitates the seamless integration and increased penetration of renewable energy sources, hence mitigating the demand response gap, in response to the growing demand for power. In order to close the demand response gap, it is an improved version of the conventional grid infrastructure that allows two-way communication of energy and data (gathered from end users, or consumers and prosumers) [1], [2]. In order to close the demand-response gap in the residential sector, the DRM has significantly advanced Renewable Energy Harvesting (REH) employing a variety of Renewable Energy Sources (RES), such as solar and wind energy [3]. According to an International Renewable Energy Agency (IRENA) estimate, India's residential sector uses 24 per cent of the country's overall energy consumption each year and is expected to increase by more than eight times by 2050 [4]. There are numerous studies on REH employing solar energy. For instance, Irtija et al. [9] suggested a method that allows the consumer to communicate directly with the energy market to adjust their energy usage in accordance with the price that is stated and the availability of energy. In order to save customers' energy bills, the suggested plan in [10] enables a selection of non-essential energy loads that must be dropped during peak hours. Prior to SPV installation, accurate estimates of energy generation must be made in order to maximize its benefits. Worldwide, a large number of researchers are focusing on the prediction of trustworthy SPV generation [11].

Fundamentals of cloud resource provisioning and allocation based on quality of service

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Abstract:
A developing trend is cloud computing, which offers various capabilities at a reduced cost, allowing for quick flexibility, maximum resource utilization, and online self-service for users. And it gives a big platform for provisioning and assigning of computing resources in an uncomplicated approach. When it comes to service quality, it will handle the resources that are available effectively—that is, by making greater use of them while keeping costs to a minimum. The paper's goal is to provide and allocate resources to users with the understanding that peak time resources should be managed. The suggested article compares several policies using a case tool diagram and analyzes them.

Keywords: Resource provision; Resource allocation; cloud computing; policy; Resource manager; case tool;Quality of Service

Introduction:
Cloud computing is virtualized and prominent trend it provides on-demand sharing figuring resources rather than the personal unit to handle the application of the internet on the pay-per-use basic system and provide reliable, customized and QoS (Quality of Service) and Most important platform for allocating huge computing resources in the easy and cost-effective way(Nayak, Brintha, &Bhuvaneshwari, 2015). Cloud computing Model and services are classified into following categories.Models are public cloud, private cloud, hybrid cloud and community cloud. Public cloud services are accessible to all, anybody can use anytime there is no restriction. But Private cloud basically used for security purpose. Hybrid clouds are a combination of the private/public cloud (Bharti&Kaur, 2014). A community cloud is managed by internally or by the third party. And Services are Infrastructure as a Service (IaaS) for examples memory, CPU, processing power etc to the user. Platform as a Service (PaaS) for example it provides a different platform like software lifecycle process" to the user. It handles thousands of servers at a time (Ghumman&Kaur, 2015). In on-demand features problem of interference is main issues so executing too many workloads and long-term reserved resource is mainly decreasing performance and both contain over and under the provision. So QoS based resource provision and allotments are necessary for the efficient provision of resources if we going to the allocation of resources help to both the consumer as well as providers (Singh &Chana, 2015a). Basically, the requirement of QoS is properly described in a negotiation or agreement (SLA) between the service provider and user. If we are planning on allocating resource without knowing of SLA, there is no guarantee for the user about QoS(Duran-limon, 2016).

Hardware fault detection by using capacitive circuit

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Abstract:
Hardware Trojans have emerged as a new threat to the security of chip and the reliability of computing systems. As such, methods of determining whether a "security chip" contains hardware Trojans are a research concern. This study proposes power relative variation (PRV) parameters to analysis the relation between test vectors and detection sensitivity. Following a brief introduction into Trojans and detection methods, we present the S-box circuit noise model in AES core and simulate the power tracks of various sizes of hardware Trojans using HSPICE. We also apply different sets of test vectors in 40 nm processing. Experimental results show that the power of the entire circuit is reduced by 41% and the PRV value increased 12.71% and 3.34% at most corresponding to combinational and sequential Trojan circuits. The valid test vectors can enhance the activity of hardware Trojans. They can also limit the noise from process, supply voltage, and temperature and extrude the features from the Trojan circuit to increase PRV value. As a result, a sample amount can be compressed at a reduced cost given a similar detection effect. Hence, the investigation into the influence of test vectors on the detection methods of hardware Trojans based on side-channel analysis is extremely important.

Keywords: Integrated circuit, test vector, detection technology, side channel analysis.

Introduction:

Hardware Trojans have weakened the security of integrated circuits (IC), and potentially unsecured chips may be implanted with hardware Trojans. With the rapid development of IC, chips have been widely applied in the fields of finance, mobile communications, transportation, energy, and military. Hence, IC security and reliability have attracted widespread attention. Given the improvements in the design and manufacturing level of IC, attacks on security chips (i.e., leaking confidential information and invalidating chips) have been simplified through these advanced designs and manufacturing technology. The increased popularity of third-party technical services has also rendered IC vulnerable to the implantation of hardware Trojans by attackers during the "uncontrolled" design and production process. This vulnerability severely threatens the security of IC chips,especially encryption chips [1-3] This threat of hardware Trojans to the security of IC supply is alarming; thus, the authentication of chip security is extremely important. Various academic circles have proposed detection methods for hardware Trojans. However, traditional detection methods based on reverse chip engineering and on functional verification are limited. Therefore, the technique of side-channel information detection is increasingly popular. Nonetheless, these methods do not utilize mature industry detection technology. In this study, therefore, we briefly introduce hardware Trojans and the detection methods developed for them. We then establish the power noise model of the S-box circuit, which is the key encryption module of the advanced encryption standard (AES) circuit. We also analyze the influence of test vectors on the sensitivity of detection methods for hardware Trojans given different test vectors K. In particular, we examine this effect in terms of cost reduction with respect to the detection of

A Cloud Virtualization and Placement Management: A Survey

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Abstract:
The "on-demand" service models offered by the cloud, which are made possible by a combination of hardware and software, are well recognized. Large virtual machines (VMs) are hosted by cloud computing services for demanding scenarios such as virtualization. The large-scale cloud data centers' growing need for network, storage, and processing resources is effectively met via virtualization. Modern resource management representations take into account fault tolerance, distributive service availability, proactive server maintenance, load balancing, power management, and virtual machine (VM) migration. One of the most difficult and ambitious problems in cloud infrastructure management is where to put virtual machines (VMs). There are a number of methods for doing this. This survey offers an analytical viewpoint on cloud computing from the standpoint of virtualization, and contemporary virtual machines (VMs).

Keywords: Cloud Computing, Virtualization, VM Migration, Data Centers

Introduction:
Cloud computing is a model which enables accessible, on-demand access to the shared computing resources such as applications, services, storage, networks and servers [1]. It rapidly provides resources with minimum control management effort and service provider interaction [2]. The underlying concept of cloud computing is to bring the specific services from shared resources with the help of virtualization technology [3]. The aim of cloud computing model is to produce a powerful usage of distributed resources, assign them along to make high turnout and to control large-scale computation efficiently and economically [4]. Cloud computing architecture as shown in Figure 1 is classified into three levels of model [5]. Cloud computing services are follows:

• **Infrastructure-as-a-Service (IaaS):** IaaS is basically hardware and software resources that operate it all like servers, networks, storage and operating systems. Users of IaaS layer manage to support applications and functional systems; however there is no requirement for server, networking hardware and storage, so it is an information center to control the hardware. Popular example of this supplier corporation is Amazon [6].

• **Platform-as-a-Service (PaaS):** PaaS is a collection of services and tool developed to create coding and deploy applications fast and efficiently. Cloud computing replaces machine language by providing the system to execute software system of the user. The example of PaaS is the suppliers, corporations such as Google [7].

• **Software-as-a-Service (SaaS):** SaaS applications are developed for end-users service over the network. The cloud users interact directly with this cloud software system and pays for usages. Popular examples of SaaS supplier is Google Apps [8][9].

Experience Report: Looking Into How to Fix Bugs in Libraries and Frameworks for Machine Learning

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Abstract:
Algorithms and techniques for machine learning (ML) have been successfully applied in many fields, including software engineering tasks. Bugs are common in ML projects and libraries, just like they are in other software projects. We perform an empirical study with 939 bugs from five ML projects by manually examining the bug categories, fixing patterns, fixing scale, fixing duration, and types of maintenance in order to gain a deeper understanding of the features related to bug fixing in ML projects. The findings indicate that: (1) ML programs typically have seven different types of bugs; (2) twelve fixing patterns are commonly used to address these bugs; and (3) 68.80% of patches fall into the micro- and small-scale fix categories. From the standpoint of software maintenance, 45.90% of bug fixes relate to corrective action. (4) 66.77% of bugs in machine learning programs can be fixed in a month. In addition, we conduct a questionnaire survey and distribute it to individuals working on machine learning projects in order to confirm the findings of our empirical research. Our empirical study's findings are essentially consistent with the developer input. The empirical study's conclusions offer developers and users helpful direction and insights for efficiently identifying and resolving issues in machine learning projects.

Keywords bug fixing, machine learning project, empirical study

Introduction:

We live in a world where artificial intelligence and machine learning are pervasive. Numerous domains, including intelligent control [1], image processing [2], pattern recognition [3], data mining [4], and other fields [5-8], have successfully and extensively employed machine learning techniques and algorithms. A growing amount of research has also been done in recent years on applying machine learning (ML) techniques to solve different software engineering (SE) tasks, such as code recommendation [22–24], code searching [25, 26], automated and semi-automated bug fixing [19–21], bug triage [8–10], bug prediction [11–15], bug localization [16–18], and many more [27–32]. Algorithms. These ML-based software engineering tasks are typically implemented using the source code (ML algorithm implementation) in pre-existing ML projects or libraries, rather than implementing ML algorithms directly. As a result, software engineering research and practice are greatly impacted by the caliber of these ML projects and libraries. In actuality, a lot of people have a tendency to accept the caliber of ML projects and libraries without critically examining any potential flaws. Nevertheless, ML projects and libraries frequently have bugs, just like any other software project [33, 34]. Due to ML projects' widespread use and popularity, even a small number of bugs can have serious repercussions and affect a sizable user base. This encourages us to carry out an empirical investigation in order to comprehend the typical bug patterns that arise during the evolution of real ML projects. A few studies [35, 36] concentrate on the empirical investigation of bugs in machine learning programs. Thung et al. investigated a number of bug categories in machine learning programs and looked at the connections between the categories and the severity of the bugs, as well as the time and effort required to fix them [35]. By expanding on our earlier work, we conducted the empirical study in this article with a greater number of bugs from more projects (Scikit-learn, Paddle, Caffe, SciPy, and TensorFlow) [37]. Our research aims to investigate the common bug categories in machine learning (ML) projects, the common patterns for fixing these various bug types, the time and scale of fixing various types of bugs in ML projects, and the common type(s) of software maintenance activities to deal with bugs in ML projects. In order to confirm the findings of our empirical investigation.

Performance Evaluation of An Embankment Using Jarofix Waste Material

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Abstract:

A waste product called jarofix is produced when zinc is extracted from its ore. Its viability for building embankment roads is being looked into. Three 100 m long test embankments comprising soil alone, jarofix, and jarofix-soil were built for this purpose. Several functional and structural metrics were measured over a two-year period to track the performance of completed road pavements built over these embankments. Below the embankment, a leachate collection system was constructed and put in place to look into the likelihood of groundwater pollution. It was discovered that the jarofix-soil embankment had more stiffness and failure stress than the jarofix embankment alone. The structural number (SN), The SN value of which is calculated using deflection, shows that the pavemeThere was a slight difference between the jarofix and soil sections. The actual stress-settlement relationships of the prototype embankments compared favorably with the projected relationships derived from the measured test results on the model embankments. The low concentration of dangerous elements, such as heavy metals and inorganic compounds, in the water seeping out of the jarofix embankment suggests that the leachate water is not hazardous. In addition to saving money, jar fix offers a substitute for traditional soil.nt is deteriorating over time in a time-dependent manner.

Introduction

A waste product called jar fix is produced when zinc is extracted from its ore. About 3 million t are produced annually, and as of 2016, Hindustan Zinc Limited in the Chittaurgarh district of Rajasthan, India, alone had accumulated roughly 26 million t. Jar fix is currently discarded on available land close to the factory, where it has no practical use. Author1 and colleagues (2010) argued that jar fix might be used as a building material. By combining it with coal ash, its mechanical qualities can be enhanced for use in landfills and building construction (Reddy et al., 2011). It has been demonstrated by Sinha et al. (2012a, 2012b, 2018) that it may be utilized to build embankments. The deformation behavior of an embankment is a significant component that influences its performance. The ease of construction, environmental pollution, traffic, maintenance quality, and duration are other significant elements that must be taken into account when assessing the viability of construction (Gedafa, 2006; Hunt and Bunker, 2004; Paterson According to Martin (1996), the most often used metric for assessing the long-term functional behavior of pavement is roughness. According to Reddy & Veeraragavan (1998), for a two-lane pavement to be structurally ranked, a maximum of 12 deflection readings and 10 rut depth readings must be obtained over a one-kilometer section. Arya et al. (1999) noted that the geography, kind of sub grade, and ambient conditions all affect the pavement's structural performance., 1986).

Potential Use of Plastic Waste as an Eco-Friendly Biturninous Road Construction Materials

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Abstract:

In India, plastic garbage is recycled in an unstructured manner. The remaining plastic garbage is left unutilized, with around 60% of the collected and separated waste being recycled back into materials for further processing into consumer goods. Therefore, it may be advantageous to use the leftover plastic garbage in this manner in order to protect the environment. The field tests withstood the strain and demonstrated that the plastic waste used as an additive after appropriate processing would extend the life of the roads and address environmental issues. The waste might be used in the construction of roads. The bitumen's melting point will rise due to plastic. The application of cutting-edge technology has improved the environment and reinforced road construction while also extending road life. India's hot and humid climate will greatly benefit from the construction of long-lasting, environmentally friendly plastic roadways that will rid the planet of all plastic garbage. This study addresses the usage of plastic trash in the process of building roads and demonstrates the vast amount of plastic garbage that may be utilized to improve road performance.

Keywords:PlasticWaste,Concrete,GreenConcrete,EconomicDevelopment

Introduction:

Plastic is an incredibly useful substance. Plastic appeared to be a more affordable and useful raw material as a result of the industrial revolution and its large-scale manufacturing. Today, plastics are used in practically every important sector of the economy, including building construction, agriculture, packaging, automotive, electronics, electrical, and communication. Researchers have discovered that plastic is a non-biodegradable substance that can endure 4500 years on Earth without degrading. Since the year 2000, India has been implementing the concept of using waste plastic to make flexible road pavement. Bitumen serves as a binding agent for aggregate in the building of flexible pavements by covering the aggregate. It also contributes to extending the life and strength of road pavement. However, it has little resistance to water. Adding synthetic polymers, such as rubber or plastic, to bitumen to change its rheological characteristics is a popular technique to raise its quality. Utilizing plastic waste in bitumen is comparable to bitumen modified with polymers. 52,000 tons of plastic garbage are produced annually in India.The disposal of plastic waste, primarily composed of polyolefins, from products like thermocolles, carry bags, mugs, and packaging films is a significant challenge. In this investigation, plastic wastes were melted down into small shreds (between 2 and 4 mm), then covered with hot aggregate at 160 ºC. This method of constructing roads with polymer-coated asphalt aggregate has been used on several. One helpful binder for building roads is bitumen. Road features were enhanced by the consistent rise in heavy traffic volume, particularly from commercial vehicles, and the notable fluctuations in daily and seasonal temperature demand. Any enhancement to the binder's properties is required. When heated, waste plastics soften to about 130°C. The absence of gas evolution has been demonstrated by thermogravimetric analysis between 130 and 180°C. Furthermore, the plastics that have softened have a binding quality.

A Household Energy Control System Using Renewable Energy and Energy Storage

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Abstract:
In order to lower household energy costs, a growing number of homes are outfitted with energy storage systems (ESS) and renewable energy sources (RES) thanks to advancements in battery and renewable energy technologies. Home energy management systems (HEMS) are typically installed in these homes in order to schedule and regulate each electrical appliance. Numerous research works have been carried out on HEMS and optimization techniques for reducing peak-to-average ratio (PAR) and energy costs. Nevertheless, none of the articles provide a thorough analysis on selling and using electricity from the main grid. In the first section of this work, we suggest a novel HEMS architecture combining RES and ESS, taking into account the selling and consumption of main grid electricity.

Keywords: Grid Connection, Motor-generator pair (MGP), Renewable energy, Self-synchronization characteristics.

Introduction:
The rate of global warming and climate change has accelerated in recent decades, leading to catastrophic weather occurrences around the world such strong hurricanes, hemispherical sea ice melting, and severe flooding. The use of fossil fuels to meet everyday energy needs results in carbon dioxide emissions, which is one of the primary drivers of global warming. Research has been done in two different methods to address this issue: first, finding additional renewable energy resources (RES) to replace fossil fuels; second, integrating RES with energy storage systems (ESS) to use energy as efficiently as possible. The synchronous machine's ability to actively preserve the power grid's stability is made possible by these features[7]. Since renewable energy has not yet reached a significant level in the system, many synchronous units are still needed to maintain the voltage. Renewable energy will have to supply its own voltage reference once it becomes more widely distributed and grid stability will decline as grid-integration inverters gradually replace synchronous generators. Additionally impacted will be the operational stability of grid-integration inverters for renewable energy[9]. Consequently, it is crucial to conduct research on how to enable renewable energy to actively support grid stability[10].

Demand Response Algorithm to Increase the Adoption of Renewable Energy

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Abstract:
The use of intelligent and energy-efficient technologies is making buildings smarter by lowering energy consumption and improving building management and operation. The requirement for energy-efficient lighting systems, efficient HVAC systems, and other hardware like sub-meters and controls is increasing quickly, necessitating greater focus on energy efficiency. Furthermore, micro-generation or poly-generation systems' energy management has always been extremely difficult. For researchers, maintaining the right balance between production and demand is a difficult task. This study looks into a straightforward, clever demand response algorithm that can reduce intermittent power outages and give users a steady supply of electricity.

Keywords: Smart grid, solar photovoltaic, renewable energy harvesting, long-short term memory, recommender system.

Introduction:
As information about the drawbacks of non-renewable energy sources and the benefits of renewable energy sources has spread around the world, interest in building a personal energy production system using renewable energy sources is growing daily. Since the 1970s, there has been a shortage of fossil fuels throughout the world, which has raised the cost of electricity. The depletion of fossil fuels and the detrimental consequences of greenhouse gas (GHG) emissions led people to conclude that producing electricity on-site with Renewable Energy Systems (RES) is the most convenient option [1]. However, the intermittent nature of renewable energy sources makes it more difficult to replace fossil fuel-based power systems. Current research efforts are mostly concentrated on the creation of an automation system that can automatically manage the utility based on the availability of current and future energy due to the difficulties connected with RES and ESS systems. Building Automation Systems (BAS)[3] have been established to make it smarter and more beneficial. Building automation systems (BAS) are a type of hardware and software that are connected and centralized to monitor and control the environment in commercial, industrial, and institutional buildings. The automation system guarantees the building's operational performance as well as the comfort and safety of its residents by overseeing a number of building systems. In homes, buildings, residential complexes, and industrial facilities nowadays, BAS is a widely used and acknowledged technology [4].

Utilizing customized power devices, the analysis and mitigation of power quality issues in distributed generation systems

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Abstract:
The problems with power quality for distributed generation systems that use renewable energy sources—like solar and wind energy—are covered in this study. Here, the problems with power quality are discussed in detail. This paper begins with the challenges related to power quality and then moves on to explore fundamental criteria. This research conducts a thorough investigation of power quality in power systems, encompassing both DC and renewable energy systems. Techniques for monitoring power quality and potential fixes for problems with power systems' power quality are thoroughly examined. Next, we examine the strategies for mitigating these issues with specialized power devices for micro grid systems, including D-STATCOM, UPQC, UPS, TVSS, DVR, etc.

Keywords: DC system, mitigation, monitor, power quality, renewable energy, spinning reserve, standards.

Introduction:

Conventional large-scale electricity generation at centralized facilities includes wind farms, hydroelectric dams, nuclear power plants, and fossil fuel-fueled power plants. These days, they are concerned about the lack of fossil fuels, the excessive emissions, and the loss of electricity resulting from lengthy transmission lines [1]. When voltage and frequency are taken into account, "power quality" refers to the electrical system's capacity to produce a flawless power supply with a clean, noise-free sinusoidal wave shape that is always steady. However, systems that deviate from this ideal power supply frequently experience disruptions due to practically large loads [2]. In a research conducted in the US between 1992 and 1997, EPRI determined the typical length of disturbances. Previous research has been done on a variety of subjects, including standards, monitoring methods, mitigation strategies, and power quality concerns. This paper intends to do an analysis based on a thorough investigation that combines all these features, particularly in the case of renewable energy sources. UPQC [22][28] is a potential remedy for the issues with sag, swell, and ticker [2], [20], and [21]. In addition, a summary of additional problems and the relevant mitigation strategies is provided, along with an effectiveness assessment of those strategies. There was previously no thorough reference work on power quality and associated problems in renewable energy systems that also included mitigation strategies and a performance assessment based on how well they worked

A Review of Artificial Intelligence in Embedded Systems

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Abstract:

Advancements in artificial intelligence algorithms and models, along with embedded device support, have resulted in the issue of high energy consumption and poor compatibility when deploying artificial intelligence models and networks on embedded devices becoming solvable. In response to these problems, this paper introduces three aspects of methods and applications for deploying artificial intelligence technologies on embedded devices, including artificial intelligence algorithms and models on resource-constrained hardware, acceleration methods for embedded devices, neural network compression, and current application models of embedded AI. This paper compares relevant literature, highlights the strengths and weaknesses, and concludes with future directions for embedded AI and a summary of the article.

Introduction:

Over the years, the development of artificial intelligence and its applications has greatly reduced the complexity of many machine learning models, making it easier to deploy them on resource-constrained devices. Furthermore, corresponding support for models and algorithms on these devices has emerged. These developments have facilitated a new research direction: embedded artificial intelligence [1–3]. The concept of embedded AI was first introduced in reference [3], which proposed that the IoT could evolve into the Wisdom Web of Things (W2T) and emphasized that embedded intelligence about individuals, the environment, and society could increase the number of users of existing IoT systems, promote environmental sustainability, and enhance social awareness. Recent developments in embedded AI are described in references [1,2], both of which combine embedded AI with IoT technology. The current mainstream research direction of embedded AI is to integrate it with IoT, which includes edge computing with convolutional accelerator [4] and load distribution [5]. Reference [6] mentions that the combination of embedded intelligence and IoT is the future direction of development. In addition, edge computing can be combined with artificial intelligence, resulting in what is known as edge intelligence [7]. The current development of embedded AI is two-way: the optimization of AI models and algorithms reduces the difficulty of deploying them on embedded devices, while hardware accelerators in embedded devices increase support for AI models and algorithms. Furthermore, hardware resources are being developed, and AI is rapidly advancing in mobile devices. For example, reference [8] describes the deployment of neural networks on cell phones, and there are also neural networks specifically designed for mobile devices, such as MobileNet [9]. MobileNet will be discussed in detail in Section 3 on lightweight networks.

Properties Of Foamed Bituminous Mixtures Affected by Recycled Asphalt Pavement

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Abstract:

Reclaimed asphalt pavement and foamed bitumen technology have become more and more popular worldwide in recent years. The qualities of constituent materials and aggregate gradation have a considerable impact on the mechanical response of foamed bitumen mixtures comprising reclaimed asphalt pavement. The study that analyzed foamed bitumen mixes that met Indian criteria is presented in this article. Foamed bitumen mixtures with varying percentages of recycled asphalt pavement and bitumen were created for this purpose. To find the ideal water quantity and foaming temperature, the foaming properties of virgin bitumens were first assessed. In order to optimize the amount of foamed bitumen in foamed bitumen mixtures with varying percentages of reclaimed asphalt pavement, mixture design was done in the second step. Lastly, the mechanical qualities of these foamed bitumen mixes were assessed. The findings of this laboratory investigation showed that bitumen characteristics, bitumen quantity, and reclaimed asphalt pavement all had a substantial impact on the properties of foamed bitumen and foamed mixes. In tests of robust modulus and resistance to moisture damage, a combination of 50% recycled asphalt pavement performed the best among the other mixtures. Acceptable strength and resistance to water susceptibility are also demonstrated by a combination that contains 80% recovered asphalt pavement. Higher percentages of reclaimed asphalt pavement can therefore be used to build high-quality bituminous mixes that satisfy the necessary volumetric and performance requirements.

Keywords:foamedbitumenmixtures,indirecttensilestrength,mixturedesign,

Introduction:

The use of different technologies in pavement design and construction has become necessary due to the depletion of raw materials in many parts of the world. Among these, one common building technique used all over the world is the use of Reclaimed Asphalt Pavement (RAP) elements into asphalt mixtures. Because it uses the most RAP material and is environmentally beneficial, Cold In-Place Recycling (CIR) is the most promising recycling method (Praticò, Vaiana, & Giunta, 2013).In essence, cold in-place recycling involves grinding down the damaged pavement to a specific depth and combining it with emulsion or foamed bitumen. Since RAP is being used at room temperature, additional RAP degradation is prevented by CIR using foamed bitumen. When compared to other rehabilitation techniques, the CIR procedure also results in a shorter construction time. Users have less traffic disruption and building costs are decreased as a result.While employing CIR with the foamed bitumen process has several advantages, there are some difficulties that need to be addressed. According to a number of studies, RAP partially adds bitumen to recycled mixtures (Li, Hao, Liu, Xu, & Chen, 2016); (Oluwa-seyi, 2010); (Technical Guideline-2, 2009). Furthermore, a major source of variability in the performance of foamed bituminous mixes (FBMs) is the heterogeneity of RAP itself.Every recycled FBM performance is different because to the usage of RAP, which makes modeling its mechanical reaction difficult. This study set out to investigate how RAP and its components affected the mechanical behavior of FBM. Several bitumens that are often used in India were employed in this study to create foamed bitumen and FBM. In every blend, there were variations in the percentage of RAP. Finally, the mechanical and volumetric properties of these mixes were examined.

Empowering HR with Artificial Intelligence: Advancing Technological Intelligence

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Abstract:

The rapid advancement of intelligent automation technologies, including artificial intelligence and robotics, has transformed various aspects of organizational operations. However, our understanding of their implications for human resource management (HRM) at both organizational and individual levels remains limited. This study aims to synthesize existing academic research on intelligent automation within HRM settings to elucidate its contributions to and challenges for HRM practices. A systematic review of 13,136 studies from top HRM, international business, general management, and information management journals identified 45 articles focusing on artificial intelligence, robotics, and related technologies in HRM contexts. Results indicate that intelligent automation presents novel approaches to managing employees and improving firm performance, offering opportunities for HRM while also posing significant technological and ethical challenges. The impact of these technologies on HRM strategies, such as job replacement and human-robot/AI collaboration, and HRM activities, including recruiting, training, and job performance, is analyzed in detail. Furthermore, this study discusses the theoretical and practical implications of these shifts and outlines future research directions in the field of intelligent automation and HRM.

Introduction:

In recent years, the proliferation of intelligent automation technologies, such as artificial intelligence (AI) and robotics, has revolutionized organizational processes across various industries. However, the integration of these technologies into human resource management (HRM) practices remains a relatively unexplored area in academic research. Despite the growing interest in intelligent automation's potential to transform HRM, there is a paucity of comprehensive studies that systematically examine its impacts and implications at both organizational and individual levels. This study seeks to address this gap by conducting a systematic review of academic literature to synthesize existing knowledge on the utilization of intelligent automation in HRM settings. By analyzing 45 articles from top HRM, international business, general management, and information management journals, we aim to elucidate the contributions and challenges of intelligent automation for HRM practices. Specifically, we investigate its effects on HRM strategies, including job replacement and human-robot/AI collaboration, as well as HRM activities, such as recruiting, training, and job performance. Through a thorough examination of these findings, this study aims to provide insights into the transformative potential of intelligent automation for HRM and to identify key areas for future research. By systematically analyzing the existing literature, we seek to advance our understanding of the implications of intelligent automation in HRM and contribute to the development of theoretical frameworks and practical strategies for effectively managing these technologies in organizational settings.

The state of academic data mining today and its prospects

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Abstract:
Academic Mining or Educational Data Mining is multidisciplinary research area of Mathematics, Data Mining/ Machine Learning and Statistics to enable student, teacher, civil society and educational administrators in better understanding and decision making. Academic mining is still evolving and is closely associated with learning analytics which enables us to discover how students understand & choose and how teachers deliver right content in view of changing academic standards. This is derived from large repositories of data available in academic institutions, though data is non standardized and heterogeneous in nature. In this paper effort has been laid to understand academic mining, its root, the present scenario and future vision has been discussed. The work of major contributors in this field has been reviewed and compared in order to make academic mining or Education Data Mining understandable to researchers.

***Keywords*:** Academic Mining or Education Data Mining; Data Mining; Predictive Data Mining; Predictive Analytics.

Introduction:
Academic as an adjective means associated with academia or relating to school, education, college, academy, or other educational institution, specifically one for advanced higher education. It implies relating to areas to contemplate that are fundamentally professional or applied, as the humanities or pure mathematics, and notrelating to anything real or practical. Academic is hypothetical or theoretical and it's not expected to produce an immediate or practical result. As a noun academic means an educator, a student or a teacher who works at acollege or university i.e. a person who is scholarly in background, techniques, attitudes, strategies, methods, etc.A branch of knowledge or information that is learned, taught, instructed, examined and researched as part of higher advanced education is known as Academic discipline or an Academic field. It covers people,individuals, ventures, groups, challenges, projects, studies, communities, enquiry and research fields that are emphatically related with a given scholarly educational branch of knowledge or ecology department e.g. in thefield of science – its branches like chemistry, physics, mathematics, and computer science are commonlyreferred to as scientific disciplines. The people that are associated with these academic scientific disciplines arecommonly called as specialists or professional experts. According to Zongyideng - "An academic discipline is a branch of learning or field associated with a scholarly department inside a college or university detailed for the progression and betterment of research and scholarship and the expert training of scientists, scholastics, specialists, researchers and academics. [Bashar, (n.d)] Data mining is a multidisciplinary subfield of computer science. It is the computing process of discovering and extracting patterns in large data sets including techniques at the intersection of machine learning, artificial intelligence and database systems. It is a process that searches for the precious nuggets from the raw data [Han *et al.* (2006)]. The general objective of data mining (DM) process is to extract information from a data set and convert it into a comprehensible structure for additional use. The analysis step of the KDD (Knowledge discovery in databases process) is Data mining. The term is often applied to any type of vast scale information or data processing like collection, analysis, warehousing, extraction and statistics. Also, the term is frequently applied to any utilization and application of computer DSS (Decision support system) which includes machine learning, artificial intelligence and business knowledge or intelligence. The term is misnomer, on

Real-world application, challenges and implication of artificial intelligence in healthcare

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Abstract:

This essay examines the state of Artificial Intelligence (AI) based technology applications in healthcare and the impact they have on the industry. This study comprised a detailed review of the literature and analyzed real-world examples of AI applications in healthcare. The findings show that major hospitals use AI-based technology to enhance knowledge and skills of their healthcare professionals for patient diagnosis and treatment. AI systems have also been shown to improve the efficiency and management of hospitals´ nursing and managerial functions. Healthcare providers are positively accepting AI in multiple arenas. However, its applications offer both the utopian (new opportunities) as well as the dystopian (challenges) Unlike pessimists, AI should not be seen a potential source of "Digital Dictatorship" in future of 22nd century. To provide a balanced view on the potential and challenges of AI in healthcare, we discuss these details. It is evident that AI and related technologies are rapidly evolving and will allow care providers to create new value for patients and improve their operational efficiency. Effective AI applications will require planning and strategies that transform both the care service and the operations in order to reap the benefit.

Introduction:

Artificial Intelligence (AI), a technology prevalent for almost 60-year has made it possible to create applications that have a profound effect on our life today. It seeks to reproduce and modify human intelligence leading to development of intelligent machines [1]. Some researchers AI has been welcomed by healthcare systems around the world, which struggle to fulfil the "quadruple objective" of improving the health and well-being of their patients, healthcare access, cost-effectiveness [6] and improving the lives of healthcare workers [7]. It is essential for healthcare providers to be well versed in the potential applications of AI technologies in different aspects of healthcare which may embark digital revolution in this sector [8]. This article will discuss numerous applications and issues of AI technology in the healthcare industry in the present times. The article also serves necessary recommendations which will help healthcare managers with strategic planning and execution of AI in healthcare. believe that AI can think and act rationally. Others disagree that AI is capable of acting and thinking like humans.

Biologics and Molecular Computing

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Abstract:
Bioinformatics and molecular computing are two prominent transdisciplinary fields that investigate computers and molecules. A subfield of computing known as "molecular computing" substitutes hardware based on DNA, biochemistry, and molecular biology for more conventional silicon-based computer technologies. Molecular computing theory, experimentation, and applications are the focus of this field's research and development. The main benefit of molecular computing is its ability to inexpensively and significantly more densely pack circuitry onto a microchip than silicon can ever manage. Because molecules are so tiny, they can be made into chips with billions or even trillions of switches and other components. Computer scientists must use their knowledge of fields unrelated to their own to construct molecular computers, such as molecular biology, organic chemistry, bioengineering, and smart materials. In contrast, bioinformatics researchers create innovative software tools or algorithms for calculating or forecasting the molecular structure or function. Although they have strong ties and focus on the same thing, molecular computing and bioinformatics approach their job from distinct angles.

Keywords: molecular computing; bioinformatics; DNA; bioengineering;

Introduction:

Feynman came up with the concept for molecular computing in 1961 [1]. Feynman's vision was not fully fulfilled because of the constraints of materials, biotechnology, and experimental settings at that time. Over the ensuing decades, advances in biotechnology and experimental techniques, together with the evolution of biological ideas, have laid the groundwork for the eventual realization of molecular computing. Adleman [1] proposed a Hamilton graph-based DNA molecular biological computation approach in 1994, which was the first to successfully accomplish molecular computing in DNA solution. Adleman's groundbreaking work established a new area of computational science, which was extremely important and quickly attracted the interest of many scientists studying mathematics, computers, biology, etc.

Furthermore, several models of biological computing have been proposed and developed, including membrane computing [2], bacterial computing [3], evolutionary calculation [4,5], and virus computation [6].

The scope of biological databases pertaining to DNA, RNA, and proteins has been rapidly expanding due to the advancement of next-generation sequencing technology [7]. Big data in biology entered its era. It becomes quite difficult to examine biological large data effectively. One crucial tool for meeting this challenge is bioinformatics [8,9]. Combining the tools of biology, computer science, and mathematics, bioinformatics makes it possible to more effectively clarify and comprehend the biological implications and significance for a range of sequence and structure data as well as other biological data. This has greatly aided in the development of numerous areas related to biological research and development.

Bioinformatics has the potential to facilitate the identification and functional study of particular biological macromolecules [10,11]. Bioinformatics may be used to examine disease mechanisms and discover the genetic basis of diseases, which will help with disease diagnosis, therapy, and even epidemic prevention [12,13]. We could evaluate the effective composition of complex medications, identify the target of new drugs, and create novel drugs by utilizing the relationship between the structure and function of biomolecules that bioinformatics has revealed [14].

Deep Learning for Real-Time Detection of Speed Hump/Bump and Distance Estimation Using GPU and ZED Stereo Camera

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Abstract:
The majority of speed bumps in India are not built or maintained in accordance with Indian Road Congress (IRC) public safety guidelines, or IRC099, which is causing severe discomfort for drivers and even causing vehicles to break apart, which is fatal. The literature covered very few techniques for detecting unmarked speed bumps or hump. We suggest a system that uses deep learning techniques to identify and alert drivers in real time to impending marked and unmarked speed bumps and humps. It also uses stereo vision techniques to determine how far away the vehicle is from the bump. By utilizing the Stereo labs ZED Stereo camera hardware and an NVIDIA GPU, we have succeeded.

Keywords: Speed hump/bump ; Unmarked Speed hump/bump; Deep Learning; Stereovision; NVIDIA GPU; ZED stereo camera

Introduction:
The speed control measures that are frequently used on Indian roads are normally seen. We also seldom see speed tables and rumble strips used as additional speed control devices. According to the IRC099[1] guidelines of the Indian Road Congress (IRC) in India, speed humps, on minor roads should span a width of 3.5 meters and a height between 10 and 12 cm. A warning sign must be present 40 meters ahead of the speed hump to allow vehicles to adjust their speed. Speed bumps should be painted like those in Fig. 1(a) to help drivers recognize their presence at night by making vehicles visible and illuminating them with solar cat eyes. The purpose of speed bumps is to slow down vehicles to a safe crossing speed of approximately 25 km/h. The purpose of speed bumps is to slow down vehicles to a safe crossing speed of approximately 25 km/h. The speed bump, is intended to keep crossing speeds of 10 mph or less. It has an abrupt rise in area on the pavement surface that typically spans 2 to 4 inches. These are suitable for parking lots, school entrances, garages, hospitals, and private roads where starting vehicle speeds are the lowest. It is evident that India is building a large number of speed bumps on its public roads, which severely injures commuters and damages vehicles.The speed bump, is intended to keep crossing speeds of 10 mph or less. It has an abrupt rise in area on the pavement surface that typically spans 2 to 4 inches. These are suitable for parking lots, school entrances, garages, hospitals, and private roads where starting vehicle speeds are the lowest. It is evident that India is building a large number of speed bumps on its public roads, which severely injures commuters and damages vehicles. Major problems are occurring on Indian roads because most speed breakers lack sign boards, solar-powered cat eyes, and daylight. India has at least thirty accidents every day as a result of malfunctioning speed breakers. The Indian Ministry of Road Transport and Highways first noted road-related deaths in 2014[2], attributed to potholes, speed bumps, and humps. Speed limiters were determined to be at fault for 3,409 fatalities (2.3%) and 11,084 crashes (2.2%) out of all the accidents that occurred in 2015[3]. In addition to collisions and fatalities, the public encounters a variety of issues as a result of driving on roads with irregular speed bumps or humps. These are listed in the following order:

- Spinal injuries and issues
- Postpones the provision of emergency services
- Suspension damage when exceeding safer speeds
- Increasing emissions of carbon dioxide as a result of frequent acceleration and deceleration
- Patients with appendicitis may have excruciating stomach pain.

A New Classification Method on the Breast Tissue Dataset, Approach -1

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Abstract:
Data Mining is the process of discovering a novel pattern. Now days it occupies all sectors like engineering and medical. Electrical impedance spectroscopy is a minimally invasive technique that has clear advantages for living tissue characterization owing to its low cost and eases of use. Dataset with electrical impedance measurements offreshly excised tissue samples from the breast. This research work presents how this novel pattern can be appliedto breast tissue classification. The Results of classification obtained from a data set of 106 cases representing sixclasses of excised breast tissue show an overall classification method.

Keywords: BayesNet, Function, Lazy, Meta, Misc, Rules, and Trees

Introduction:
Breast cancer is typically diagnosed using a tissue biopsy. This is a process by which a sample of suspect tissueis removed from the patient and sent away for histological and chemical analysis. This process typically takes 1to 2 days, but some samples give inconclusive results and require the patient to have a second biopsy. If a faster method of tissue analysis or a method to determine if a tissue sample is a good candidate for further screening, the cost of screening and stress endured by the patient in awaiting results could be reduced. Electrical Impedance Spectroscopy (EIS) is a method that can used to measure the complex impedance properties of a material. A voltage or current of known frequency and amplitude is applied across the system and the response current or voltage is recorded. The differences in phase and magnitude of the applied stimulus and response are used to determine the complex impedance at that frequency. This is repeated for a range of frequencies to determine how the complex impedance of the system changes with stimulus frequency. Results are often displayedin a nyquist plot, showing the resistive and reactive components of impedance at each frequency measured. Often these plots will have characteristic shapes; for example, figure 1 shows the characteristic curved nyquist plot fora simple RC circuit. In this research work section 1 contains the introduction about this research work. Section 2 focuses the literature reviews of this research work. In Section 3 contains the Materials and methods of this breast tissue dataset. In Section 4 contains the results and discussions of this research work and finally, it focuses on conclusion of this research work.

Social Media Monitoring Techniques for Sentiment Analysis

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Abstract:
Social media has become an indispensable part of social life. It influences the beliefs, values, and attitudes of people, as well as their intentions and behaviors. Social media acts not only as a platform for personal communication, but also, as a means for communicating opinions about products and services or even political and general events among its users. Due to its widespread and popularity, a huge amount of user reviews or opinions are being generated and shared daily on social media. Therefore, converting social media content into information, key concepts, and themes is crucial for generating knowledge and formulating strategies to support operational, managerial, and strategic decision making. Opinion mining and Sentiment analysis are the formalization for studying and constructing opinions and sentiments. The current paper aims at studying and providing the comparison of different methods of sentiment analysis used for extracting the polarity (positive, negative or neutral) of social media dataset.

Keywords: Sentiment analysis, Naive Bayes Classifier, social media, Lexical knowledge base, Decision tree.

Introduction:

A vast amount of data is available online due to the growth of the internet. This data might be in the form of text files or numerical data, and it can be organized, semi-structured, or unstructured. Because of the increasing popularity of websites like Amazon.com and Epinion.com, where users may rate and evaluate a wide range of products, the internet is overflowing with reviews, comments, and ratings. Non-topical text analysis has experienced an increase in attention in recent years, in addition to data and text mining. An example of this is sentiment analysis. Sentiment analysis, also known as Opinion Mining helps in identifying and extracting subjective information in source materials and categorizes them as positive, neutral, or negative. In recent years, more attention has been paid to the problem of sentiment classification [1]. Using appropriate mechanisms and techniques, the vast amount of data generated online can be processed into information to support operational, managerial, and strategic decision making [2].Sentiment analysis aims to identify and extract opinions and attitudes from a given piece of text towards a specific subject [3]. Social media measurement or 'social media monitoring' is concerned with the active monitoring of social media channels for extraction of useful information about a company or organization, usually tracking of various social media content as a way to determine the volume and sentiment of online conversation about a brand or topic. Methodologies which can speedup processing and reduce latency are required for real time analysis of social media application.

A Summary of Medical Diagnosis Using Machine Learning Techniques: The Machine Predicts The Diagnosis

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Abstract:
Big data analytics and intelligent decision making systems are gaining importance in today'sera. Applications of such systems are wide spread and have changed major areas of human living. Evenmedical domain is being revamped by these systems. Now intelligent systems predict or suggest thediagnosis based on history of the patient. Early predictions for critical disease like diabetes are very muchpossible. This review gives a brie insight to such systems with focus on diabetic patients. Survey shows itcan also help out to point out the various risk factors that can alarm the scenario well in time. Theintension of the paper is to analyze how data mining can be helpful in such early diagnosis of diabetes aswell as to see how different researchers has used this techniques for better predictions.

Keywords: Diabetes, prediction of diabetes, data mining technique etc.

Introduction:
The global rate of diabetes has increased from 4.7% to 8.5% within almost 25 years i.e. 1980 to 2014 [1]. The predictions say that the almost 109 million Indians might be suffering from diabetes [2]. The defects in the secretion of insulin or the use of insulin may cause the metabolism dieses, which is termed as diabetes. [3] Diabetes can be categories into different category.*Type1 Diabetes:*This type of diabetes is also called as juvenile- onset diabetes or insulin dependent diabetes. The β-cells of thepancreas are destructed which are responsible for the production of insulin. The rate of destruction is very fast inyounger age. Environmental factors and genetic factors may the suspect for this type of diabetes.
Type 2 Diabetes: Diabetes mellitus also called Type 2 Diabetes causes sugar to collect in blood stream. It becomes very difficult for the body cell to absorb the insulin or to use the insulin. Type 2 diabetes is more common than Type 1 diabetes. This type of diabetes is sometimes called as adult-onset diabetes. There are few symptoms or risk factors like obesity, age, family history, race etc. but still there are some examples where none of these symptoms may be observed.
Gestational Diabetes: It is the third type of diabetes. It is defined as any carbohydrates intolerance recognized first time during pregnancy. The rate of such diabetes cases are increasing slowly. The patients have different characteristics of pregnancy than the normal pregnant women. There can be complications in the delivery which may results in fetal death, fetal macrosomia and growth disorder, neonatal hypoglycemia etc. There are multiple risk factors related to it like over obesity, family history, life style of patient, maternal age, miscarriage history which one has to consider. Regular exercise, good healthy diet and insulin dose may control the diabetes but total cure is as good as impossible. Otherwise normal diabetes can lead to various problems such as [4]:a) Kidney failure(nephropathy) here the filtering system is damaged and ends in kidney dieses,b) Cardiovascular dieses where the arteries gets narrowed or chest pain with heart attack,c) Nerve damage (neuropathy) in which the blood capillary gets damaged which may cause tingling, numbness etc. It may even affect the digestion system. d) Eye damage (retinopathy) can lead to cataract or glaucoma, in some cases even leads to total blindness. e) Foot damage: severe infections happen if unattended can lead to foot or leg amputation.f) Alzheimer's disease: diabetes increases the risk of diabetes. So it is very much important to detect the diagnosis in very early stages to avoid further complications.

An examination of quality indicators to improve students' performance for the next postgraduate course selection

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Abstract:
In the recent past, academics have used a great deal of educational data to uncover hidden patterns in students' academic performance, learning style, study habits, and other areas. These problems have been resolved by employing data mining techniques. The elements that most influence students' decisions to choose postgraduate courses are the subject of this paper study. There are a plethora of other factors to take into account as well, such as the university and its location, the course materials published by the institution, its reputation, the costs and funding associated with the courses, the prerequisite exams, and the potential careers that your postgraduate degree could lead to, to name just a few.

***Keywords*:**Data analysis, data mining, statically analysis

Introduction:

Future trends and behaviors may be predicted using data mining techniques, which enables several sectors to make proactive, knowledge-driven decisions and either supervised or unsupervised data mining techniques should be used on very large or raw datasets while doing data mining. Education data mining is a rapidly developing field that uses historical data on student academic performance, learning analytics, study habits, and other variables that are important to achieving a good enrollment ratio in a particular course to solve a wide range of problems. Numerous factors impact pupils' academic achievement.

It's commonly said that postgraduate students lack the expertise of graduates, and if a career in education improves your skills after graduation, then that information is a valuable asset. That is a staggering amount of students that are unfit to work. Since they are unable to obtain employment in order to gain some work experience, these students are typically more perplexed. According to a study, "The costs associated with higher education are high, but so are their benefits." Postgraduates make more money than graduates do, and a postgraduate's earning potential varies depending on the kind of degree they hold [1-3].

In a study report, the ARTMAP network's parameters are utilized to predict student performance. merit on the previous test, practice by using real-world examples, average merit over the course of the study consistency in attending classes, inclination towards the course, Paying attention in class, showing interest in the material, While in class, taking notes, A desire to learn, completing assignments, faith in diligence, parents' educational background, faith in the idea of learning from errors, the family's earnings, Consult reference materials when studying.funding, a study with revision [4].
An effective enrollment strategy can be derived from elements linked to both desired and undesirable performance, and factors connected to performance can result in an effective degree/course design. These and other criteria are the subject of a study published in another publication.[5] The same factors were utilized by some other researchers: the student's last term

Comparative Analysis of Hybrid Natural Fiber Composites' Dielectric Properties

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Abstract:

The dielectric characteristics of unsaturated polyester hybrid composites and jute/bamboo natural fibers reinforced with polypropylene, including dielectric loss factor, dissipation factor, and dielectric constant, were investigated at various fiber loadings, fiber ratios, frequencies, and natural fiber chemical modifications. The dissipation factor, loss factor, and dielectric constant greater than the pure polypropylene and pure unsaturated polyester materials across the whole frequency range when the fiber concentration increased. At low frequencies, this increase was large; at medium frequencies, it was low; and at high frequencies, it was extremely low. Because of the reduced interfacial and orientation polarization at higher frequencies, a drop in dielectric constant values was seen. In contrast, when hydrophilic lignocellulose fibers were added, the dielectric constant rose as the fiber loading increased because there were more polar groups present. There was a sodium hydroxide therapy on bamboo and jute fibers to enhance the fibers' adherence to the matrix. Because the fibers were more hydrophobic after being treated alkaline, the dielectric constant was reduced in composites made of such fibers. The dielectric constant, dissipation factor, and loss factor were observed to increase as the weight percentage of jute fiber in the hybrid composites' overall fiber content rose. It is clear that different polymer kinds have little effect on the hybrid's dielectric characteristics combined.

Introduction:

In the electrical and electronic industries, polymers are frequently employed as assemblies or housings. Plastics are among the best materials for electrical and electronics applications because of their ideal attributes, which include ease of manufacture, light weight, affordability, and superior insulating qualities. The Plastics' use in electrical and electronic applications was restricted to general-purpose, load-bearing uses. In addition to serving as efficient insulators, fiber-reinforced plastic materials give field-carrying conductors mechanical support [1]. .. Nevertheless, the polymers must be rendered conductive in order to distribute electrostatic charges in several applications, such as wire and cable sheathing and shielding against electromagnetic interference. They accomplish this by having conductive reinforcements incorporated into them. Fillers such as Because fibers and flakes require smaller volume fractions to obtain the desired conductivity, it has been discovered that they are the most effective for this purpose [2]. Fibrous reinforcements incorporated into polymer matrices result in high-performance composite materials with excellent mechanical characteristics appropriate for electrical and electronics applications. They can be utilized as switches, connectors, terminals, industrial and domestic plugs, and circuit boards that were printed.

Characterization and analysis of surface-coated fly ash reinforced biodegradable poly(vinyl alcohol) composite films

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Abstract:

Aqueous casting was used to create composite films of poly(vinyl alcohol) (PVA) reinforced with 5, 10, 15, 20, and 25 weight percent surface-coated fly ash by surfactant sodium lauryl sulphate (SLS-FA) and 1 weight percent glutaraldehyde (GLA) as a cross-linking agent. With the addition of SLS-FA, the tensile strengths of the composite films increased proportionately. When compared to plain PVA, the composite with 20 weight percent showed a maximum 75% increase in strength. The addition of SLS-FA resulted in a drop in strain at break but an increase in modulus that was likewise proportionate to the addition, reaching a high of 218% in the composite with 20 weight percent. FTIR spectrum changes reveal the chemical and/or physical bonding in the component systems of the ternary PVA, SLS-FA, and GLA. Interstitial voids and connections were seen in SEM images used in the surface morphology investigation. When comparing the films containing SLS-FA to the unmodified FA composite films, the AFM calculations reveal a surface that is 53% smoother.

Keywords: Poly(vinyl alcohol) Surface-coated fly ash Sodium lauryl sulphate Composite film Tensile strength Interface

Introduction:

In comparison to plain polymers, composite materials made of polymers and fillers exhibit high modulus, strength, and heat resistance as well as low gas permeability and flammability [1]. Composites' mechanical characteristics are often determined by the The size and distribution of the filler, the aspect ratio, the volume percentage, and the natural adherence between the filler and polymer surfaces [2]. Because high aspect ratio (fibre type) fillers can transfer high local stress from the polymer matrix, they typically increase the yield strength [3-12]. The selection of may have an impact on the development of interfacial interactions between filler and polymer.surface functional groups and may result in the creation of polymer composites with improved performance.

Thermal power facilities that burn coal produce a significant amount of fly-ash (FA), a fine, powdery byproduct. Given that FA is typically disposed of using the landfill technique in dams and lagoons, transporting and storing the material presents significant environmental challenges [13]. Depending on the processing circumstances, FA can contain trace amounts of calcium, magnesium, potassium, sodium, and titanium in addition to a variety of alkali and transition metal oxides, primarily silicon, aluminum, and iron [14]. Studies on the recovery and repurposing of filler alloys (FA) in environmentally friendly composites have been documented using metal [15]

Impact of filler addition on glass fiber reinforced epoxy's compressive and impact qualities

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Abstract:

Glass fiber reinforced epoxies are mixed with flyash to observe how the filler affects the material. Flyash's low cost can lower the component's overall cost. In this study, only extremely low volume fractions of filler are examined. In order to gain more insight into the behavior that has been seen, another One set of the specimens contains calcium carbonate, an inexpensive and widely accessible substance. The inclusion of a relatively modest number of fillers results in a significant rise in impact strength but a fall in the material's compressive strength. Only the impact properties of specimens containing calcium carbonate are examined. By testing specimens with three distinct aspect ratios, the impact of the specimen aspect ratio on the compressive strength values is also investigated. Observations with a scanning electron microscope are made to gain a deeper comprehension of the microscopic phenomena occurring in the material system.

Keywords. Fillers; flyash; compression test; impact test; fibre reinforced epoxies.

Introduction:

Because of their decreased density, polymers found use in a wide range of applications. They are appropriate for weight-sensitive structural applications due of their lightweight nature. Sometimes the high cost of polymers prevents them from being used in commercial settings. Utilizing minimal Easily accessible fillers could be helpful in lowering the component's cost. To make sure that the mechanical characteristics are not negatively impacted by such an addition, research on the effects of such filler addition is required. Available references suggest investigations on a large number of materials to be used as fillers in polymers (Katz and Milewski 1987) but only a few of them deal with the material systems containing fibres and fillers simultaneously (Gupta et al 1999). The purpose of use of fillers can be divided into two basic categories, first, to improve the properties of the material and second, to reduce the cost of component.

Research on Brazilian lignocellulosic fibers. Section II: Brazilian coconut fiber morphology and characteristics

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Abstract:

Brazilian coir fibers' tensile characteristics, thermal behavior, and stress-strain curves for various diameters are shown. It was discovered that as fiber diameter rose, the coir fibers' tensile strength (TS) and Young's modulus (YM) decreased but their percentage (%) strain at break stayed unchanged. When using fibers (mean diameter of 0.225 mm), the percentage strain at break and TS decreased yet the consistent YM and percentage strain at break with rising strain rate, as well as a significant rise in TS and YM with increasing fiber test length. Microscopic observations and X-ray diffraction are used to discuss the results. The deterioration of distinct elements in a N2 or O2 atmosphere was indicated by the thermal behavior of the fibers. The fibers' thermomechanical study showed lower tand values and higher modulus.

Keywords: A. Coconut fiber; B. Tensile properties; B. Thermal analysis; D. Microstructure

Introduction:

Over the past ten years or more, there has been an increase in the use of lignocellulosic fibers as reinforcements for polymeric materials to replace synthetic fibers, particularly glass fibers in composites, for a variety of industrial sectors, including packaging, cars, and even building [3, 4]. This is mostly because to their distinct qualities, qualities including quantity, biodegradability, low density, non-toxicity, reduced abrasiveness to plastic manufacturing machinery, and beneficial mechanical qualities, in addition to their inexpensive price.17–40% of glass fiber is present [4]. They are now alternatives to synthetic fibers in the production of composites [2–6]. Furthermore, because of the strict enforcement of laws, especially in European countries, there is an increasing awareness of ecological concerns, notably in the automotive uses of these fibers [6]. These elements also promote the discovery of new applications for these fibers, which would otherwise be wasted. Moreover, these fibers could offer significant chances to raise people's standards of living by fostering the creation of new jobs, especially in the rural area. Consequently, all nations possessing these natural resources have initiated research and development endeavors involving lignocellulosic fibers in an attempt to leverage their possible societal benefits.

Hydrogen-Bonding Assembly of Flexible-Chain Poly (vinyl alcohol) and Rigid-Rod Poly (p-sulfophenylene terephthalamide) for Transparent, Sturdy, and Tough Molecular Composites

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Abstract:
Using a water casting approach that is both environmentally friendly and simple to scale up, molecular composites consisting of flexible-chain poly(vinyl alcohol) (PVA), a rigidrod polyelectrolyte that is a sulfonated polyaramid, and poly(p-sulfophenylene terephthalamide) (sPPTA) were created. Impact of sPPTA on the characteristics and microstructure was methodically examined in relation to the molecular composites. Fourier transform infrared spectroscopy verifies that sPPTA and PVA form hydrogen bonds. Even at sPPTA contents as high as 33 weight percent, wide-angle X-ray diffraction patterns do not exhibit the characteristic of neat sPPTA crystalline aggregates in the composites. This suggests that a strong interaction between sPPTA and PVA inhibits sPPTA's self-aggregation and promotes the formation of PVA/sPPTA complexes inside the composites.

Introduction:
More than thirty years have passed since the concept of molecular composites was first introduced by Helminiak1 and Takayanagi2.For testing, polymeric composite systems utilizing flexible polymers as the matrix and rigid-rod polymers as the reinforcing agents have been created. The main challenge in creating genuine molecular composites is dispersing stiff, rigid-rod polymers molecularly in flexible matrices due to the unfavorable enthalpy of mixing, which occurs even when polymers have comparable chemical structures.3. Numerous investigations revealed phase separation and a little improvement in the mechanical characteristics of the composites made by direct mixing polymers that are stiff and flexible. Researchers have created copolymers of the rigid and flexible polymers or added specific interactions, such hydrogen bonding7,8, ionic interactions4,5, and acid-base interactions6, between the two components to tackle this issue. Robers et al.9, for instance, described how to create molecular composites of nylon-66 and poly(pphenylene-2,6-benzobisthiazole) using their soluble coordination complexes in organic solvents. According to transmission electron microscopy, sPPTA and PVA mix well, and as the amount of sPPTA in the composites increases, it becomes possible to see nanoscale supramolecular assemblies that resemble fibrils and disperse uniformly. Additionally, the PVA/sPPTA complexes significantly impact the melt thermal stability, point, crystallinity, and mechanical characteristics of PVA. The PVA/sPPTA composites have excellent ductility and strength. The PVA/sPPTA composite has the best mechanical properties when the concentration of sPPTA is 5 weight percent. Its tensile strength is 169 ± 13 MPa, which is 54% greater than that of clean PVA (110 ± 10 MPa). Remarkably, the reinforcement factor surpasses that of nanodiamonds, vapor-grown carbon fibers, and multiwalled carbon nanotubes that were previously reported for the reinforcement of PVA nanocomposites. Additionally, the molecular composites of PVA/sPPTA have a comparatively small modulus compared to premade nanocomposites, but a significantly greater elongation at break, indicating high ductility. In the future, the robust and durable PVA/sPPTA molecular composites may be employed as high-performance membranes or fibers.

Influence of Flyash on Filled Nylon 6's Mechanical, Thermal, Dielectric, Rheological, and Morphological Properties

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Abstract:

In order to enhance the qualities of polymers, fillers are utilized in combination with different commodities and engineering polymers. The interface attraction between the polymers and filler is typically what determines the performance of filled polymers. Fillers used in extensively The interfacial interactions with polymers are susceptible to changes in particle size and surface properties. The current study examines how flyash-filled nylon 6 is affected by particle size and concentration.

Keywords: nylon 6, flyash, composites, mechanical properties, thermal properties, dielectric properties, rheological properties, morphological properties.

Introduction:

Particle-filled polymer composites have gained popularity due to their affordability and broad range of uses. The physical characteristics of plastic resin are enhanced by the addition of inorganic mineral fillers, resulting in increased mechanical strength,temperature of heat distortion and modulus. Generally speaking, good adhesion at the interface surface and the size, shape, and distribution of the filler particles within the matrix polymer have a significant influence on the mechanical properties of particulate filled polymer composites. Because of their superior mechanical qualities, nylons are one of the most popular engineering thermoplastics used in consumer, automotive, electrical, and electronic applications, as well as packaging and textiles. However, pure nylons' low thermal distortion temperature, high water absorption, and dimension instability, among other mechanical property constraints, have made it impossible for them to be used in structural components. Thus, a great deal of work has been done to employ nylons as matrix resins for composites by using inorganic fillers, such as aluminatrihydrate6. clays6, micas7,8,9, talc2,6,10,11, flyash12, montmorrilonite, wollastonite 2, 6, 10, 13, kaolin, etc. The authors examined the impact of mica particle size on nylon 6 characteristics in a prior publication (14). The nylon 6 polymer was combined with flyash in various weight ratios for this experiment, and the polymer's mechanical, thermal, dielectric, rheological, and morphological properties were assessed. Fly ash has long been used as a filler (15–18).

Skin tissue engineering using hydroxyethyl cellulose nanostructured materials

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Abstract:

This paper describes the effective fabrication and characterization of a novel fibrous membrane made of a combination of poly(vinyl alcohol) and hydroxyethyl cellulose (HEC) using the electrospinning technique. To achieve smooth results, the content of HEC (5%) and PVA (15%) was adjusted, combined in various ratios (30–50%), and electrospun.tiny filaments. By chemically cross-linking with glutaraldehyde, nanofibrous membranes were rendered water insoluble and utilized as scaffolds for skin tissue engineering. The Fourier transform infrared spectroscopy, scanning electron microscopy, and mechanical and thermal properties of the blended HEC/PVA nanofibrous scaffolds were evaluated. thermogravimetric analysis, universal testing apparatus, and differential scanning colorimetry. Human melanoma cells were used in cytotoxicity tests employing these nanofibrous scaffolds and MTT assays. The SEM images demonstrated that the cells were able to adhere to and proliferate within the nanofibrous scaffolds. These initial findings indicate these nanofibrous scaffolds are promising for skin tissue engineering because they promote cell adhesion and proliferation.

Keywords: Electrospinning Hydroxyethyl cellulose Nanofibrous scaffolds Skin tissue engineering

Introduction:

Because nano-biomaterials mirror the structure of extracellular matrix and provide a platform for cell adhesion, differentiation, and proliferation, research using them as scaffolds in skin tissue engineering is rapidly expanding. Several techniques are used to manufacture the nanoscale biomaterials, including phase separation, electrospinning, drawing, self-assembly, template-assisted synthesis, James, Nair, and Kumarcin (2008). However, due to its capacity to create a wide range of polymeric nanofibers, electrospinning is gaining the greatest attention from researchers (Huang, Zhang, Kotaki, & Ramakrishna, 2003). The process of electrospinning results in fibers with linked pores and nanoscale lengths that nearly mimic the topographical properties of ECM. Using a strong electric field, a diverse method can be used to create nano and microfibers from polymer melts or solutions in the 30-200 nm range In the capillary, the polymer solution is expelled as jets when the electric field overcomes surface tension. As the jets go in the direction of the collector, they solidify and become nonwoven fabric. Adjusting the process parameters, such as applied voltage, solution viscosity and conductivity, changes the form and characteristics of the nanofibers.

Effects of volume percentage and fiber orientation on the unidirectional Alfa-polyester composite's tensile characteristics

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Abstract:

Prepared and tested is a new structural composite material reinforced with unidirectional natural fibers. Long Alfa fibers that were taken off of the Alfa plant's stem using the soda procedure are utilized as reinforcement.The matrix that is being employed is made of unsaturated polyester resin. Tests reveal that these fibers' unique tensile characteristics are quite intriguing and nearly identical to those found on several synthetic fibers. Unidirectional Alfa textiles were used to create composite plates, from which specimens are sliced for mechanical testing. The impact of fiber composition and orientation on mechanical The Alfa/Polyester composites' characteristics have been assessed. It has been noted that these fibers can be used to create stiff, strong composite materials that are suitable for a variety of structural applications, including sports goods and automobile components.

Keywords: A. Fibers; B. Mechanical properties; Natural fibers reinforced composites

Introduction:

The stippa tenacissima plant, also known as esparto grass, is commonly grown in the arid regions of North Africa, particularly in the central region of Tunisia, where it is known by its Arabic name, Alfa.It produces 60,000 tons of goods annually and occupies over 3500 km2 [1]. Alfa is a member of the family Gramicies. It grows best on light clay soil and is made up of cylindrical stems that can reach a maximum height of around one meter. Alfa ultimate fiber costs 1600 dollars per ton, while Alfa stem costs 60 dollars per ton. Strong, rigid, and light cellulosic fibers, mostly utilized in the manufacture of premium papers for adornment, cigarettes, and dielectric, make up the Alfa stem.uses for cooling units. Traditiona Most often, the soda process—which involves boiling the stem in a NaOH solution and then bleaching the fibers—is used to separate the alfalfa fibers from the stem.in hydrogen peroxide or bi-oxide chloride solutions [2]. The quality of Alfa fibers is impacted by the extraction method. In fact, extended boiling and bleaching times result in the short, fine fibrils that are typically employed in the production of paper. It is possible to produce long, light cellulosic fibers with superior mechanical qualities with a comparatively short cooking time.lly, ropes and carpets have also been made from the stems.

Estimating the Tensile Strength of Thermoplastics Reinforced with Natural Fibers

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Abstract:

A modified rule of mixtures (ROM) strength equation was used to estimate the tensile strength of short natural fiber reinforced thermoplastics (NFRT). The adjustment is based on a clustering parameter that requires the greatest composite fiber volume fraction.The clustering parameter shows that the accessible fiber stress transfer area decreases with increasing fiber loading. As a result, at high volume fractions, which results in a reduction in the stress transfer area and an increase in the short fiber composite's brittleness and tensile strength. Fitting the micromechanical strength model to tensile strength data at low fiber loading (10 wt%), where there is little fiber clustering, allowed for the determination of a crucial parameter: the interfacial shear strength. Compression molded specimens of high-density polyethylene (HDPE) reinforced with hemp, hardwood, rice hull, and E-glass fibers were made with fiber mass fractions ranging from 10 to 60 weight percent in order to evaluate the updated ROM strength model. It was discovered that the tensile strength of the different composite specimens could be accurately predicted using the modified ROM strength model.

Keywords: A. Discontinuous reinforcement; A. Thermoplastic resin; B. Mechanical properties; C. Analytical modelling

Introduction:

The construction and automotive industries utilize thermoplastic materials reinforced with natural fibers, and these markets are growing quickly. The microstructure, bond strength, and qualities of the constituent materials (fibre and matrix) define the composite's capacity to withstand loads. Micromechanical models that forecast composite strength in the literature on short fiber composites make the assumption that failure results from either fiber breakage or fiber pullout in conjunction with matrix fracture [1]. The current investigation focuses Using a semi-empirical modification to the Rule of Mixtures (ROM) strength equation, the tensile strength of HDPE reinforced with different natural (hemp, hardwood flour, and rice hulls) and synthetic (E-glass) fibers was predicted in the latter case. The amount of fiber–fiber interactions that result in a decrease in the available fiber stress transfer surface area is taken into consideration by the semi-empirical modification. 2. A review of the literature on the micromechanical models that can be used to forecast the tensile strength of thermoplastics reinforced with short fibers (SFRT) A force balance that weights the average fiber (rF,AVG) and matrix (rM,AVG) stresses by the corresponding volume fractions VF and VM, respectively, yields the average composite stress (r1)

Mechanical Characteristics of Composite Material with Epoxy Resin and Natural Rubber

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Abstract:

This study examines the mechanical characteristics of three different kinds of composite materials made of natural rubber: vulcanized, unvulcanized, and reinforced rubber. The composite material made of epoxy resin and natural rubber is produced in three steps: first, natural rubber and epoxy resin are mixed together in a unique mixer without the need for extra ingredients; second, a layer of rubber is created, coated with epoxy resin, and then bonded using the rolling process. The third involves using natural rubber as a matrix material and mixing epoxy resin with it in five different ratios (20%, 40%, 60%, 80%, and 100%). Additional materials like carbon black are also used in tThe inhomogeneous composite material created by the first and second methods were unsuccessful, whereas the homogenous composite material produced by the third way was successful. Tests for hardness and compression have been performed on the resulting composite material made using the third approach; the outcome shows that the composite material has good qualities, which are enhanced by increasing the ratio of natural rubber to epoxy resin. The mechanical characteristics of three different composite material types—vulcanized, unvulcanized, and reinforced rubber made of natural rubber—have then been studied. Six percentages of epoxy resin (0%, 20%, 40%, 60%, 80%, and 100%) were applied to each kind. This process. The yield stress, yield strain, tensile strength, and Young's modulus values were computed for every scenario and for every % of epoxy resin. It's over that the new composite material made of natural rubber has much better properties than pure natural rubber, and that the percentage of epoxy resin in vulcanized rubber decreases with increasing percentage in unvulcanized and reinforced rubber, while the percentage of epoxy resin in vulcanized rubber increases with percentage in Young's modulus.

Keywords: Composite Materials, Natural Rubber , Epoxy Resin, Engineering materials

Introduction:

Natural rubber has been extensively studied, and contemporary technologies need materials with common combinations of characteristics that the polymeric material is unable to meet. Physical attributes were added to the relationship between thermal aging and the natural rubber structure by Black et al. [1]. According to Reinhart et al. [2], epoxy resin is widely employed in composite materials to meet a range of difficult structural requirements. Researchers Sloan [3] have looked on how carbon black affects natural rubber. This study presents the novel composite material It is explored to see if carbon powder and epoxy resin can be used with natural rubber as the reinforcement material and the rubber itself as the matrix. Rubber's flexibility makes it a singular phenomena with characteristics that set it apart from low-molecular-weight solids, liquids, or gasses in many ways. Using epoxy resins as.

ICMRI/2018/156

Application of Artificial Intelligence in Medical Predictions

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Abstract:

Medicine is a domain where predictions are very important. This paper encourages the use of artificial intelligence (AI) as technological support for decision-making in medical life. Not because the human intelligence would not be enough, but because the mechanisms of artificial intelligence have several benefits that are suitable for this area. These positive features come as a result of combining two strong qualities in the same systems: the precision of mathematics and the power of current technologies. It would be a real waste to ignore them.

Introduction:

First of all, a decisional system is not intended to replace the physicians (however, it would be impossible). It only makes suggestions. The final medical decision belongs to humans. But some automatic systems are useful for two important reasons: − to avoid simple, usual things that are time consuming and overload the medical stuff with a lot of activities that could be easily performed by a machine (for instance, to verify if the medical features of a patient recommend that person for a certain job, or to predict when is the optimal time to supply the store for a specific medicine); − to point out medical conditions which can be hardly detected by humans; a suggestion or an alert can make the difference between life and death (for instance, to detect some cancerous cells in an image, or to predict the risk of a genetic disease). This paper presents several mechanisms from the large domain of artificial intelligence, emphasizing the benefits they bring to medical decision-making. There are also discussed some weak points of each mechanism; it is necessary to underline them in order to determine the most suitable AI method for a specific task. The mechanisms that are described in this paper are applied to decisional systems developed for liver's diseases in order to emphasize the features of these mechanisms [6]. Some of these features (advantages or disadvantages) can be found in the domain's literature and they are evidenced by the decisional systems presented here. Some others have been noticed once these systems were developed.

Acute Inflammations Data Set Meta classifications

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Abstract:
This research work presents a decision making of healthcare operational system by using machine learning classifiers algorithm to predict the decision making in comparison to the actual decision making. This model may help to doctor for making the best decisions. This model helps us to predict Acute Inflammations. The results show that Bagging, logitBoost and multiclassclassifier for this case study generates highest accuracy of 48.75%.

Keywords: Meta data,Machine learning,RBF Kernel

Introduction:
It is impossible to avoid machine learning in today's healthcare. Effective techniques and research approaches are required in today's healthcare system to prevent the spread of infectious diseases, save lives, and lower healthcare costs. Examples of modern healthcare practices include the processing and analysis of medical images, the prediction of operational choices in the field, and the administration of prostate cancer and dose trials for intravenous tumor treatment. In this study, the Meta classification approach was implemented in Weka 3.8.3 using a variety of kernels, including Polykernel, Normalized Polykernel, Puk, and RBF Kernel, to compute the likelihood of predicting the operative decisions of the Caesarean section. This study is structured as follows: Section 1 includes relevant literature and a brief overview of the area; Section 2 includes Materials and Methods; Section 3 details findings and debates; and Section 4 concludes.

Machine learning in today’s healthcare is unavoidable. Today’s healthcare needs effective methods and researchmethodologies to save lives, reduce the cost of the healthcare services and early discoveries of contagiousdiseases. Now a day’s instances in healthcare such as medical image processing and analyzing, predictinghealthcare operational decisions, dosage trials for intravenous tumor treatment detection and management ofprostate cancer. In this research work applied in weka 3.8.3 version for Meta classification method by applyingvarious kernels namely Polykernel, Normalized Polykernel, Puk, and RBF Kernel were applied to calculate forpredicting caesarian section operational decisions. In this paper organizes section one has related works and brief introduction of this fields, section two presents Materials and Methods, the section three describes results and discussions and the section four presents conclusion.

Very High Voltage Offshore Wind Demonstration

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Keywords: Cables,Substations,Offshore,66kV,Windfarms,three phase voltage.

Abstract:
Near-to-shore wind farms, such as theUK'sRound1, connect their generation to shore at 33kV.This is also currently the standard distribution voltage (or collection voltage) for inter- array networks. Larger, further-from-shore wind farms normally use offshore substations to step-up generation to a higher voltage, e.g.132kV/170kV before transmission back to shore. Recent research shows that a submarine cable capable of being used for 66kV networks, i.e. a "wet-type" cable, could be type-tested and made available. The Carbon Trust is currently progressing work to qualify and type-test this cable, which presents opportunities for standard collection voltages to increase from 33kV to 66kV. This paper presents the benefitsofutilising66kVfornear-shoreandmediumdistance offshore wind farms, both for UK and international demonstration wind farm projects. The benefits include the potential to reduce the amount of submarine cabling required, reduced losses in the connection at 66kV versus 33kV, and the potential to eliminate offshore substations in some cases. The costs and benefits have been quantitatively and qualitatively assessed and detail is provided for 33kV/66kV equipment cost comparisons (switchgear, cable and transformers), cost reduction/benefit impacts of substation and cabling rationalisation, and full-life difference in losses and hence revenue from generation. The paper specifically addresses the feasibility of developing a system implementing 66kV at the Blyth Offshore Demonstration site. Also presented are potential enablers and barriers to 66kV market uptake such as supply chain readiness, the feasibility of demonstrating the proposed 66kV technology at dedicated sites in the UK and outline design and feasibility considerations for certification at 66kV with an emphasis on Low Voltage Ride-Through (LVRT) certification. It is concluded that moving to 66kV could lead to capital cost and full-life benefits compared with the present standard voltage of 33kV for many near and medium distance-to-shore wind farms. However, steps to accelerate market uptake should also be considered by exploring enablers (testing, demonstration, certification, etc.) and solutions to related barriers.

Introduction:

An assessment of the technology and supply chain readiness relative to 66kV technology has been carried out and this is presented in section 3 of this paper. This was followed by a feasibility review for 66kV demonstration including a cost assessment of the capital investment associated with deployment of 66kV systems on a number of offshore wind demonstrations sites under development around the UK. Relevant equipment cost information was provided by ABB to inform this work, complimenting Narec's in-house database of project development costs. A summary of the findings of this review relative to the preferred demonstration site, the Blyth Offshore Demonstration Site in the North east of England, is presented in section 4 of this paper. In parallel with this work, analytical studies focussing on low voltage ride through (LVRT) testing on 66kV systems were conducted to understand the likely impact of this certification activity of

Enhancing the Accuracy of Speaker Identification Using BLSTM Neural Network

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Abstract:
In this work we analyze speaker identification accuracy on Lithuanian speaker dataset LIEPA. This dataset consists of 370 Lithuanian speakers reading given text samples. We preform speaker identification with HMM classification and then repeat the same test with different types of LSTM and BLSTM neural networks. On the given dataset we experimentally observe speaker identification accuracy improvement from 3% to 6% compared to best HMM implementation**.**

Keywords: HMM; BLSTM; speaker identification.

Introduction:
Speaker identification is one of the more challenging tasks, because of the nature of human voice variability foreach individual speaker. Not only speech signal varies between different speakers, utterances among samespeaker samples differ as well. On the other hand, person recognition by voice is very attractive, because it doesnot require expensive equipment to collect data, compared to other biometric identification means, like irisscanners or fingerprint readers.In the field of biometric recognition by voice, most widely used method for classifying speaker is HiddenMarkov Models (HMM). In the light of the new breakthroughs in deep learning and building on the success of language recognition with deep learning, we find, that these techniques can be successfully applied to speakerrecognition tasks.In this paper we show how we can use neural networks and deep learning to improve speaker identificationaccuracy compared to HMM. We use grid search method to find best neural network hyper-parameterconfiguration and then test it for highest speaker identification accuracy.

SMO classification with several kernels for the cervical cancer dataset

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Abstract:
This research work presents a decision making of healthcare operational system by usingmachine learning classifiers algorithm to predict the decision making in comparison to the actual decisionmaking. This model may help to doctor for making the best decisions. This model helps us to prediction ofindicators/diagnosis of cervical cancer. This study explains utilization of machine learning algorithms indetermination of medical operation methods. This dataset focuses on the prediction ofindicators/diagnosis of cervical cancer. The results show that SMO in RBF Kernel parameter for thiscase study generates highest accuracy level of 87.5%.

Keywords:*Kernel*, Machine Learning, Image Processing

Introduction:

Machine learning in today's healthcare is unavoidable. Optimists predict that machine learning and artificial intelligence will diagnose disease better and earlier, treat illness more precisely and engage patients more efficiently in future healthcare. In recent years instances in healthcare such as medical image processing and analyzing, predicting healthcare operational decisions, dosage trials for intravenous tumor treatment detection and management of prostate cancer. In this paper organizes section one has related works and brief introduction of this fields, section two presents Materials and Methods, the section three describes results and discussions and the section four presents conclusion.

The materials and procedures used for this research are presented in this section. The dataset used in this instance was obtained from https://archive.ics.uci.edu/ml/datasets/Cervical+cancer+%28Risk+Factors%29#. This dataset includes historical medical records, demographic data, and behavioral patterns for 858 individuals patients. In this study, the SMO classification approach was implemented in Weka 3.8.3 using a variety of kernels, including Polykernel, Normalized Polykernel, Puk, and RBF Kernel, to compute for predicting the operational decisions of the caesarian section.

A Unique Framework for Energy-Efficient Computing for Green Computing with Sustainable Energy Sources

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Abstract:
Sustainable energy sources are used by many green computing applications to reduce unnecessary energy consumption. Utilizing renewable energy sources to their full potential is essential for increasing energy efficiency. The resource-centric cloud environment is presented in this research along with the Energy Proficient Computing Framework (EPCF). Enhancing the shared efficiency of energy distribution in computer systems is the primary goal of the EPCF. Computers are assigned renewable energy based on how many calculations they have available and what state they are in at any one time. For this determination, traditional k-means clustering divides the states and computations. Throughout the computation, this mapping process is continued until all of the energy is distributed evenly. If the leak's origins can be found in advance, energy can be saved for later use.

Keywords: Renewable energy, energy allocation, green computing, k-means clustering, sustainable energy.

Introduction:

In order to provide ecologically acceptable solutions for the application of electronic resources in natural environments, green computing paradigms have arisen. Green computing and communication are reusable/disposable electronic application solutions that lessen their negative environmental effects [1]. Power management and energy efficiency are two more design objectives of these types of paradigms. In these computer settings, eco-friendly power distribution and allocation are utilized to get dependable results [2]. Such a computer paradigm lowers the amount of toxic waste that is not disposable and preserves the supply and demand of electricity [3]. The design and construction of hardware and circuits that are compatible with the various tasks carried out by the green computing systems is the foundation for the static energy optimization [4].On the other hand, dynamic power management maximizes the system's application execution to maintain efficiency. Renewably sourced natural energy is used by green computing techniques to power computations and other system-based functions [5].

Deep Data Fusion Model for Risk Perception and Coordinated Control of Smart Grid

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Abstract:
A deep data fusion model for risk assessment and coordinated control in a regional power system control center is presented in this work. Based on past knowledge from cross-domain energy management systems, an effective state representation has been found using a knowledge learning data fusion approach. Specifically, a kernel principal components analysis method is introduced for knowledge learning's nonlinear dimensionality reduction. Our control technique is based on a cross-domain global optimization approach that views the backup systems' control actions and contingencies as constraints. The product of control factors and cross-domain assessment defines the objective function. The inner point code provides the best way to find the answer. In order to demonstrate the relevance, many machine learning techniques have been examined.

Keywords: Smart grid, solar photovoltaic, renewable energy harvesting, long-short term memory, recommender system.

Introduction:
The industry has undergone numerous changes as a result of the smart grid's development in numerous nations, which has increased complexity, interconnectedness, and uncertainty. The need for stability analysis and control of power systems has also grown dramatically. In recent times, there have been numerous new obstacles and uncertainties added to the intelligent monitoring and control of future power system control centers due to the initiative to promote deep data analysis [1-4]. Supervisory control and data acquisition (SCADA) and energy management systems (EMS) are built to leverage historical knowledge and online operational data in order to intelligently monitor the states of the power system. The traditional smart grid monitoring and control architecture is dispersed and intricate [5-7]. Knowledge-based operation monitoring and control systems will get increasingly hybrid as machine learning technology advances and is used. The four main components of the proposed framework are as follows: 1) a deep data fusion model for risk perception and coordinated control; 2) a kernel learning algorithm that uses kernel principal component analysis technology to find an efficient state representation; 3) a coordinated control algorithm that finds the best solution; and 4) a disaster backup and recovery strategy that automatically switches off critical emergency medical services applications as soon as possible.

Rendering Engg Sp With 3d Printing Technology Come Together

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Abstract:
3D printing is a technology used to print three-dimensional objects using a speciallydesigned 3D printer. The technology has seen numerous developments, advancements and applicationssince its inception. It has been one of the most talked about developments in the digital world and hasinvolved millions of investment and funding in R&D establishments by big commercial and defenseplayers around the globe enabling creation of almost everything from tiny human body parts toconstruction of buildings today. However, the most challenging aspect involved in the 3d printed objectsis the reliability factor that will impact the future of this technology. This article aims at study of the 3Dprinting technology and recommend the way forward for its utility in improving on-site engineeringsupport as the function of Corps of EME**.**

Keywords: 3D Printing, EME, STL, e-Commerce

Introduction:
3D printing is a printing technology that involves a distinct technique of combining several kinds ofmaterials and processes to create solid three-dimensional objects. The first ever accepted patent in thistechnology is by the name of Mr Chuck Hull of 3D Systems Corporation, California (US), who invented thefirst 3D printing process called ‘stereo lithography‘ by contributing an Stereolithography file format (STL) in1983, which emerged as a break through in the proliferation of the technology and is widely common in many3d printing processes today. The STL format is a digital file capable of storing data with respect to threedimensionalprinting process.2. The production line process involves different methods to manufacture objects. The 3d printinginvolves Additive manufacturing (AM) which signifies addition of materials in successive layers and phases tocreate objects. Additive manufacturing in 3D printing enables fast production as compared to traditionalmanufacturing methods. Combination of a variety of materials and processes with different permutation andcombinations, capable of handling simple to complex geometries, are printed based on the 3D model to serveobjects for different industries, as is available in the world today.3. The objects created from this technique are created using a 3d printer that reads a digital file (STLformat) as input and produces successive layers of materials such as metals, plastics, concrete, resins, or sand, until the entire object is created.4. Today, like the successful e-commerce websites incl Amazon, Flipkart and Alibaba, there are websites which offer products related to 3d printing. The available products are 3d models of thousands of objects, slicing softwares, materials used and 3d printers. There are websites like makexyz.com and treatstock.com which seek3d model of desired objects and provide on-demand 3d printing and delivery with accuracy and precision. Google Trends report as on 19 Oct 2018 shows the increase in interest of people across the world for 3d printing rising for more than 1000 percent from 2011, which is the clear indication of the exponentially increasing popularity of the technology in present day global market.5. Recently, an article on *‘Aerospace 3d printing’* by Sarah Saunders of 3DPrint.com on Apr 4,2018reveals that one third of General Electric Aviation’s new turboprop engine for aircrafts will consist of 3d printed metal components. This indicates the far developments, which the technology has undertaken in the past decade moving leaps forward towards bringing a reliability factor in the 3d printed objects.

Radiation Patterns Generation of Horizontal Dipole Array Embedded in Different Dielectric Slabs

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Abstract:

A number of papers are available on the analysis of dipole arrays in free space. But the work on embedded dipoles in dielectric media is limited in open literature. The behavior and characteristics are completely changed when the dipoles are embedded in dielectric slab. In this paper horizontal dipole array embedded in different dielectric slabs and different slab thickness is considered. Based on which, and radiation patterns are generated. Such patterns are used in point-to-point communications, scan, and non-scan radar

Introduction:

With the quick progress of recent communication technologies, several wireless communication systems are inclining towards small dimension with wide frequency band, better performance and high integration. To meet their advance requirements, antennas as compulsory module in wireless communication systems are obligatory to have a wide band frequency, low profile, and stable and high gain in many circumstances. In some distinct applications, such as point-topoint communication, military communication, and radar technologies, antennas with wideband unidirectional radiation patterns are also required. Embedded antennas fulfill above-said requirements. The advantages of embedded antennas are, the fabrication cost is very low, light in weight, low volume, so that it can be made conformal. It can be effortlessly fixed on Airplanes, Rockets, Missiles and Satellites. It does not give rise to aerodynamic drag when used in aircraft [2]. In this research paper the horizontal dipole antenna array is embedded on various dielectric slabs with ground plane on other side are considered and compared. These antennas array commonly used at the frequency from UHF to the microwave frequency. Design and analysis of antennas embedded in the dielectric slab are very important criteria which are considered in the present work. The performance of the single element antenna is limited as these applications requires antenna parameters like high gain, high directivity and low side lobe level. So, Antenna arrays are becoming gradually significant in wireless communications to provide the ability of a steerable beam or radiation direction change as in smart antennas. They can provide a high gain by using multiple antenna elements and they provide a diversity gain in multipath signal reception. Array of antennas has superior characteristics when compared to a single Antenna array is needed to obtain good adaptive properties. They are used to increase directivity, gain and reduce beamwidth. The antenna elements play a vital role in shaping the radiation pattern [3]. There are diverse kinds of antenna elements available to form an adaptive array. These include dipoles, microstrips, horns, reflectors and so on.

A New K-Nn Classification Methods Using Aminer Dataset Topic Modelling

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Abstract :
Social network is a structure of human relations and association. It is made up of a organized social actors in a network form. Information has varied number of forms and various purposes for communication. Journals serve as major source of primary information.The topics were divided into categories, such as Algorithm, Data mining, Database, Artificial Intelligence, Clinical, Medical Imaging,Image Processing, Biomedical Informatics, Image Processing, and Telemedicine, which happens to be alittle exercise around the topic modeling. The problem of extracting from the huge dataset for authorarticle relationship with appropriate classifier with best accuracy was considered by carrying out theexperiment in this chapter.

Keywords: LinearNNSearch, BallTree, Filtered-NeigbhourSearch, Euclidean, Manhattan, and Chebyshev.

Introduction:

In the background of today's big data, it is an important part of the enterprise activity planning to accuratelyexcavate the interest preference of the user-specific fields from the large data. Nowadays, the emergence of asocial network represented by microblog makes a large number of users more willing to use it to share theirinterest in various fields. Microblog platform will provide a large number of user motion data, which can besed to mine the user's interest preferences in specific areas. Therefore, a lot of user data on the microblogplatform can effectively mine the user's interest and bring huge commercial value.In this paper organizes section one has related works and brief introduction of these fields, In section tworepresents materials and methods, In section three describes results and discussions and the section four presents conclusion.

Identification of frog sounds through vocalization becomes crucial for environmental monitoring and biological study. To assess the accuracy of frog sound identification, various feature extraction techniques and classifiers have been used. This work provides an Extended k-Nearest Neighbor (EKNN) classifier for frog sound recognition. In order to enhance classification performance, the EKNN classifier incorporates reciprocal sharing of neighborhood ideas and the nearest neighbors. Based on who the testing sample's closest neighbors are and who they perceive the testing sample to be, it provides a prediction. The k-Nearest Neighbor (KNN), fuzzy k-Nearest Neighbor (FKNN), and general classifiers are compared with the EKNN classifier in order to assess the classification performance in frog sound recognition.

Design of conformal antenna for aircraft

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Abstract:

The most challenging thing in real world is communicating with aircraft, even though several communication technologies has been adopted for tracking and monitoring the aircraft there is no cent percent efficiency , for that an implementation of conformal antenna for transmission and reception of the signal is preferred . In radio communication and avionics a conformal antenna or conformal array is a flat radio antenna which is designed to conform or follow some prescribed shape, for example a curved conformal antenna is designed and is mounted on or embedded in a curved surface. The conformal antenna is a collection of large number of smaller antennas (PAA) each one is connected to a phase shifter. The phased array antenna will have high directivity in desired application. Conformal arrays are typically limited to high frequencies in the UHF or microwave range, where the wavelength of the waves is small enough that small antennas can be used. The main objective of this project is to embed this conformal antenna on the surface of the aircraft with increased gain. To implement the above mentioned problem we are using CST microwave software. Conventional methods now used in aircrafts are done by using conformal antenna to save space and even military applications to be anonymous. Antenna stands to be an interface between the transmitter and the receiver. By working on the software and hardware features of antennas we can develop an antenna with better gain. By the adoption of better gain the antenna will be more efficient. Thus by implementing this conformal antenna on the aircraft surface with increased gain high degree of accuracy, clarity and effective communication link can be achieved.

Introduction:

Antennas are key components of any wireless communication system. They are the devices that allow for the transfer of a signal to waves that propagates through space and can be received by another antenna. The receiving antennas responsible for the reciprocal process which is turning an electromagnetic wave into a signal or voltage at its terminals that can subsequently be processed by the receiver. The receiving and transmitting functionalities of the antenna structure itself are fully characterized by An antenna system is defined as the combinationof the antenna and its feed line. As an antenna is usually connected to a transmission line, how to best make this connection is a subject of interest, since the signal from the feedline should be radiated into space in an efficient and desired way. In some applications where space is very limited such as hand portables and aircraft, it is desirable to integrate the antenna and its feedline.

Artificial Intelligence for Europe's Intelligent Renewable Energy Sector Smart Cities of the Future: Intelligent Energy Infrastructures

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Abstract:
The field of smart energy is one of the most difficult ones for future smart city research. More research is required on important topics including optimization, the supply of intelligent, adaptable networks, and sophisticated computational techniques and procedures made possible by artificial intelligence and machine learning. In the context of climate change and resource depletion, renewable energy (RE) is a potent resource for future global growth. Artificial intelligence (AI) suggests new guidelines for structuring tasks to meet these demands. To meet the various issues that will impact the growth and resilience of the sector, improvements must be made to the design of the energy infrastructure as well as the deployment and production of RE.
Keywords: Smart grid, solar photovoltaic, renewable energy harvesting, long-short term memory, recommender system.

Introduction:
In order to effectively integrate advanced artificial intelligence technologies into Smart Energy systems and grids, it is necessary to have a multifaceted grasp of social, economic, and computational challenges. A solid specification of the research challenge and an early definition of the domain are necessary for this type of socio-technical platform and integration.In order to find real answers for global development that go beyond the post-industrial society and its ramifications, society, academia, and business have joined forces in the pursuit of sustainable development. During the mid-1970s energy crisis, when it became apparent that there was a chance of running out of conventional fuels, renewable energy (RE) and resource conservation became appealing. In the 1980s, concerns about the need to prevent or mitigate environmental damage were aroused by pollution, global warming, and resource depletion [1]. Recent increases in energy use have drawn attention to low-carbon renewable energy sources and the ongoing need to maintain the environment and public health [2], [3]. One of the main contributions to the reduction of greenhouse gas emissions and import dependency is the integration of renewables into the energy industry. Because humans must regulate the energy supply, it is not surprising that renewable energy sources (RE) are becoming the mainstay of energy systems as environmental pressure mounts on them. Finding ways to control the growing amount of energy from renewable sources is crucial in order to meet the world's desire for affordable, clean energy. Cost and environmental considerations are significant to producers, governments, and consumers alike.

An Analysis of a Miner Dataset Case Study: Spotting Top Research Using Different Models

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Abstract:
The increasing tendency across scientific disciplines to write multi authored papers [1,2] makes the issue of the sequence of contributors' names a major topic both in terms of reflecting actual contributions and in a posteriori assessments by evaluation committees. The reviewers aware that thereare different cultures to authorship order. The usual and informal practice of giving the whole credit(impact factor) to each author of a multi authored paper is not adequate and over emphasizes the minorcontributions of many authors. Similarly, evaluation of authors according to citation frequencies meansoften overrating resulting from high-impact but multi authored publications. TejaTscharntke et al. [72]proposed that four methods. Like as SDC,EC, FLAE, and PCI. Comparison of the credit forcontributions to this study under the four different models has been suggested. The proposed systems,such as Individual Frequency (IF) and Weighted Frequency (WF), have no repeated impact for eachposition.

Keywords: SDC,EC,FLAE,PCI,IF and WF.

Introduction:

Social network is a structure of human relations and association. It is made up of a organized social actors in anetwork form. Information has varied number of forms and various purposes for communication. Journals serveas major source of primary information. The Researchers tend to publish more and more research output injournals. This paper focuses on the novel techniques for identifying the leading research contribution in theclusters of research social networks. M. T. Rahman et al. proposed an approach that can be used to measure theimpact of an author of a multi-authored paper in a more accurate way than either giving each author full creditor dividing credit equally. The proposed proposal not only resolved the long-standing concern for the fairdistribution of each author's credit depending on his/her contribution, but it will also, hopefully, discourage the addition of non-contributing authors to a paper. TasleemArif proposed a method that use a token-basedsimilarity score in this first stage of comparison and based on the results of the first stage it uses a characterbasedsimilarity score in the second stage. Experimental results obtained on standard datasets indicated that theproposed technique shows a lot of improvements over the existing methods. J. M. Warrender proposed a simpletool that assisted researchers in assessing contributions to a scientific publication, for ease in evaluating whichcontributor qualify for authorship, and in what order the authors should be listed. The tool identified four phasesof activity leading to a publication. In this paper organizes section one has related works and brief introduction of these fields, In section tworepresents materials and methods, In section three describes results and discussions and the section four presents conclusion.

A Customized e-Learning Platform's Effectiveness and Acceptability at a Philippine State University and College

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Abstract:
The purpose of this study is to scrutinize the impact of efficiency of the software on studentsand acceptability to use e-learning Tool in their education. This study used a descriptive evaluativemethod of research in order to obtain an overall sense of the data being analyze in the e-learning tool forthe College of Computer Studies in terms of efficiency and acceptability towards using the system. Thedata gathered in each criterion will be described for the technology acceptance and efficiency of the elearningTool. The instrument used was based on (ISO 9126) Software Product Quality and (IBM)Usability Satisfaction. ISO 9126 and IBM standards serves as a framework or model for providing worldwide acceptable software qualities required for software evaluation. Findings: Data was gatheredsystematically and given careful consideration, analysis and interpretation using appropriate statisticaltools as to come up with the following results; Based on the gathered data from the respondents for thelevel of efficiency of the e-learning tool the variables were rated as 4.7 Strongly Agree (SA) in general. Forthe extent of acceptability of the e-learning it also obtained the average weighted mean of 4.6 of allvariables and was rated Strongly Agree in general. This implies that students have a positive responsetowards e-learning tool because they find the system easy to use and useful for their course work**.**

Keywords- Efficiency, Acceptability, e-learning tool, Technology Acceptance Model

Introduction:

Computer as part of the innovation in technology manifest larger changes in the field of education.Educators are enthusiastic on searching for innovative, efficient, and realistic approaches that would assiststudents learning. They have attended several trainings and seminars on the revisions of instruction in order tomeet up the desires of the students. Instructors are encouraged to make use of these innovative technologicaldevelopments. Changes in technology have led to modifications in generally accepted educational perspective.According to Seattler (2004), "*The historical function of educational technology is a process rather than aproduct.*" With the edge of technology, computers are now used as one means of instruction. Educators nowhave to give a second notion to the very nature of learning and also have to explore for unconventional learning and development solutions in concern of the rapid advancement of technologies. In the study of Chris Dede(2005) "Rapid advances in information technology are reshaping the learning styles of many students in higher education." As a result, advances in technology create new opportunities for higher education; emergingtechnologies can be used to deliver instruction matched to the learning styles of the new genre of students.For numerous students, e-learning is the most appropriate means to pursue a degree in tertiary education. Thus,these students are more likely motivated to enroll in an e-learning class. Moreover, in e-learning classes,learners or students are open to register and accomplish work any time they want. According to Scott (2000)Carnegie Mellon University (CMU) in America, where e-Learning techniques have not only improved studentexam results but have acted as educational bridges between subjects, breaking the ancient boundaries betweendisciplines. Furthermore, the inference is that higher education institutions which utilize effective eLearningmethods not only enhance the performance of students in assessments but also produce graduates who aretheoretically and practically prepared for working in an information age (Holley 2002).Successful implementation

Mother Tongue-Based Scripting Language: Waray Scripting Language (WSL)

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Abstract:
The objective of this study was to develop a waray scripting language to introduce computer programming using mother tongue-based scripting language to the beginners especially the first year college students enrolled in computer-related programs in Eastern Samar State University and to evaluate the waray scripting language in terms of its usability, readability, and writability. This study used racket programming language an open-source programming language to develop WSL, racket helps programmers develop and quickly deploy new language. WSL was subjected to software evaluation in terms of usability, readability and writability were based on (ISO 9126) Software Product Quality Metrics. This study used developmental-evaluative research design. The result shows that WSL a mother-tongue-based scripting language is of acceptable and is compliant to the ISO software standard with the variables obtained the average weighted mean rated as 3.5 Acceptable in general. For readability, it also obtained the average weighted mean of 3.6 Acceptable in general and for usability, it obtained the average weighted mean of3.4 Acceptable in general and it also obtained the average weighted mean of 3.5 of all variables and was rated Acceptable in general. This implies that students have an optimistic response towards WSL.A modified syntax for better readability can also be introduced to enhance more the quality of the WSL.

KEYWORDS: ISO 9126 ,waray scripting language, mother-tongue based scripting.

Introduction:

Eastern Samar State University in Borongan City is an educational institution with its primary goal is to produce excellent graduates in all fields of study offered in this university. Students enrolled in computer-related programs in this university are using scripting language especially the first year college students. It is a flexible language that provides fast program execution. This study would like todevelop a scripting language in Waray. Waray is one of the major language spoken in the Philippines,mostly in the Eastern Visayas Region. In this study, WSL a mother-tongue-based scripting language isused to serve as a tool for first-year college students enrolled in a computer-related program inLearning Programming easily.A scripting language is a programming language that employs a high-level construct tointerpret and execute one command at a time. In general, scripting languages are easier to learn andfaster to code more than structured and compiled languages such as C and C++ Magaret Rouse, 20164.There are lots of scripting languages that are available worldwide, this scripting language variesaccording to the purpose. Every scripting language has its own set of words (keywords) and syntaxes used that start a computer to perform certain tasks there are some scripting languages around the world that uses their own dialect as keywords for easy understanding of the locals. Most of all, the popular scripting languages that are being used today are in the English language. There are articles that attempted to explain instructional language issues. Fischer and Perez,20081 said that students may struggle to learn the content in their second language if their academic knowledge is not sufficiently strong as their first language. That's why many people are having difficulties in learning scripting especially to those non-native speakers of English due to their lack of knowledge in the English language. This situation leads to the possible problems of understanding and

Ultra-Wideband (UWB) Microstrip Patch Antenna with Adjustable Notch Frequencies

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Abstract:

An ultra-wideband (UWB) antenna capable of producing notches at lower frequencies of the UWB band is presented in this paper. The notch can be adjusted to attain desired frequency by changing the size and the distance between the two studs placed between the circular patch. Defected ground structure has been applied to improve the antenna performance. The VSWR and radiation plots approve the suppression of the desired notched frequency

Introduction:

The world is making a transaction towards wireless devices and in the current market, due to qualities such as wide bandwidth, lower cost and higher data rate, ultra wideband (UWB) has been considered for many wireless communication applications. As stated by FCC, for commercial applications, UWB spectrum ranges from 3.1 to 10.6 GHz [1]. UWB has become very popular among shortrange applications that use radio technology for communication. Though the operating bandwidth of UWB is wide, antenna designers have faced challenges while designing antenna that can achieve wide impedance bandwidth, wide radiation patterns and can meet the space constraints. In addition, since many operating bands function under the UWB systems, they are prone to collisions between each other's. Narrow bands like WiMAX (3.3-3.7 GHz), European C-band (3.8-4.9), Indian national satellite (4.5-4.8 GHz), and other wireless local area networks (5.15-5.35 and 5.725-5.825 GHz) that are part of UWB, pose a collision threat while in operation. However, solving this problem may further increase complications such as increase in size, production cost and insertion loss of the UWB system. Thus, UWB antennas must be designed considering the collisions that can occur between narrow bands. Antennas that consume less power, with reduced weight, size, design, and are easier to manufacture are required for portable Internet of Things (IoTs) applications. Along with the mentioned qualities, antennas that can avoid collisions should also be considered. As a solution, many researchers have proposed designs of antennas with band notches by either modifying the ground, radiating the patch or both [2-8]. Various techniques in different antennas to create band notches have been applied. Thin slots being etched in the radiating surface or ground plane has been done in few antennas to create antennas working in multiband, with notches at lower frequencies. This was to prohibit interferences between UWB and other narrowband systems without increasing additional expenses or size of the system.

Moving the Automobile Industry Towards a Data-Centric Architecture

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Abstract:
Over the past 20 years, software architectures for vehicles have changed to accommodate data-driven features. Currently, a number of businesses from various industries are concentrating on enhancing their data architectures through the process of redefining the underlying data models in order to facilitate the fundamental support of artificial intelligence and analytics. Furthermore, the fields of semantics and knowledge graphs are driven by a shared desire to include explicit context and clear data provenance. However, the scenario of connected vehicles implies additional complexity in the automotive industry. Because there is so much variation in vehicle data, standards must be developed and implemented. A conceptual design for vehicle software architectures in the automotive industry is the subject of ongoing research at the BMW Research Department, and it is presented in this paper in part. We go over the fundamentals of a contemporary data architecture, focusing especially on the data-centric way of thinking. In addition, we examine the existing obstacles and potential solutions as a starting point for the transition from compartmentalized data to an artificial intelligence factory.

Introduction:
In the last few years, advances have been made in data and analytics capabilities. More complex algorithms are being developed, there is an exponential increase in the amount of data that is available, and storage and processing power have steadily increased . As a result, we see that depending on data to inform digital innovations and business decisions has become the new norm rather than intuition. In fact, data is regarded as the "most valuable resource" in economic analyses .However, we think that a contemporary and scalable data architecture is the only way to fully realize the potential. The automotive industry has been significantly impacted by this particular data and analytics advancement. In addition to all the mechanical parts, contemporary connected cars have a variety of data-driven features. Modern connected cars have hundreds of sensing devices, enormous processing power, and intricate sensor networks on wheels. Their software architecture has been developing in this way, primarily to facilitate improved data utilization for the purpose of supporting and providing a range of applications and services . As a result, there have recently been new areas of interest. Application ecosystems, third-party integrations, traffic management, safe vehicle usage on the road, driver behavior patterns, safety features of vehicles, diagnostics, and other areas are some of these areas. But modern cars have to sacrifice a great deal of complexity in order to achieve such innovation. Applications' handling of the ever-growing volume of data is one factor symbolizing this growing complexity. The creation and uptake of standards will be crucial because future innovations will be based on how quickly data can be interpreted, consumed, and integrated from various domains. Therefore, an appropriate data architecture is required to enhance and expand data-driven decision-making and foster innovation.In order to move the automotive industry toward a data-centric architecture, this paper discusses the necessity of implementing standardized data models. To facilitate web interactions and enable the inclusion of semantics to represent the situational context, we present an approach that takes into account current standard specifications from the World Wide Web Consortium (W3C) and the GENeva In-Vehicle Infotainment (GENIVI) alliance.

MIMO solution to wireless communication

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Abstract:
Transformative solutions are expected to drive the surge for accommodating arapidly growing number of intelligent devices and services. Major technological breakthroughs to achieve connectivity goals within 6G include: (i) a network operating at the THz band with much wider spectrum resources, (ii) intelligent communication environments that enable a wireless propagation environment with active signal transmission and reception, (iii) pervasive artificial intelligence, (iv) large-scale net-work automation, (v) an all-spectrum reconfigurable front-end for dynamic spectrum access, (vi) ambient backscatter communications for energy savings, (vii) the Internet of Space Things enabled by CubeSats and UAVs, and (viii) cell-free massive MIMO communication networks. In this roadmap paper, use cases for these enabling techniques as well as recent advancements on related topics are highlighted, and open problems with possible solutions are discussed, followed by a development timeline outlining the world wide efforts in the realization of 6G. Going beyond 6G, promising early-stage technologies such as the Internet of NanoThings, the Internet of Bio Nano Things, and quantum communications.

Introduction:

Wireless communication systems have experienced substantial revolutionary progress over the past few years. Various stakeholders, including commercial solutions providers, academic research groups, standards bodies, and end-users, haveall greatly benefited from the radical changes led by the most recent 5G developments, which include paradigm-defining techniques such as network softwarization and virtualization, massive MIMO, ultra-densification, and the introduction of new frequency bands. Numerous burgeoning applications and verticals, including virtual and augmented reality (VAR), e-commerce, contactless payment, machine-to-machine communications, and enhanced mobile broadband, among others, have demonstrated the vast potential of 5G.

The channel phenomenology and total transmit power determine the information-theoretic bound on the spectral efficiency. Choosing whether to provide back channel estimation data to the transmitter during MIMO system implementation will allow the emitter to adjust. The majority of research on MIMO communication has concentrated on feedback-free systems. An informed transmitter (with feedback) in a MIMO system is more likely to have a higher spectral-efficiency bound at high SNR, but it is also easier to construct. Interference, whether deliberate or inadvertent, is one of the environmental problems communication systems face. Localized interference can be automatically reduced in MIMO systems because they make use of antenna arrays. Beyond the advantages of single-input multiple-output systems—that is, a single transmitter and a receiver with multiple antennas—the benefits stem from the nearly absolute guarantee that an interferer cannot unintentionally null a significant portion of the transmit signal energy due to transmit diversity.

Quality of Service Evaluation for Wireless Communication Systems

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Abstract:

Wireless systems offer a unique mixture of connectivity, flexibility, and freedom. It is therefore not surprising that wireless technology is being embraced with increasing vigor. For real-time applications, user satisfaction is closely linked to quantities such as queue length, packet loss probability, and delay. System performance is therefore related to, not only Shannon capacity, but also quality of service (QoS) requirements. This work studies the problem of resource allocation in the context of stringent QoS constraints. The joint impact of spectral bandwidth, power, and code rate is considered. Analytical expressions for the probability of buffer overflow, its associated exponential decay rate, and the effective capacity are obtained.

Introduction:

System performance is therefore related to, not only Shannon capacity, but also quality of service (QoS) requirements. This work studies the problem of resource allocation in the context of stringent QoS constraints. The joint impact of spectral bandwidth, power, and code rate is considered. Analytical expressions for the probability of buffer overflow, its associated exponential decay rate, and the effective capacity are obtained. Fundamental performance limits for Markov wireless channel models are identified. It is found that, even with an unlimited power and spectral bandwidth budget, only a finite arrival rate can be supported for a QoS constraint defined in terms of exponential decay rate.

Transport characteristics' effects on lithium's conductivity Composites of chitosan and poly(vinyl alcohol) doped with perchlorate

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Abstract:

The computation of the transport characteristics of the lithium perchlorate (LiClO4)-doped poly(vinyl alcohol)/number density of ions and time travel of ions between sites, mobility, diffusion coefficient, and number of transitions per unit time) is the main emphasis of this paper composites of chitosan (PVA/CS) utilizing the Rice and Roth model. The glass transition temperature for LiClO4-doped PVA/CS composites decreases, according to the thermal investigation. The composite containing 20 weight percent LiClO4 has the maximum ionic conductivity, measuring 3 106 S cm1 at ambient temperature. The Arrhenius relation governs the temperature-dependent conductivity, with the highest conducting sample exhibiting the lowest activation energy of 0.153 eV. The mechanical characteristics, like rigidity, Young's modulus, and As the level of LiClO4 doping in the PVA/CS polymer matrix increases, the tensile strength drops and its percentage elongation at break rises. The PVA/CS composite's surface seems smooth and uniform in the scanning electron microscopy pictures.

Keywords Polymer composite, dielectric properties, transport parameters, mechanical properties

Introduction:

These days, solid polymer electrolytes that satisfy the many demands of contemporary devices are highly required. Solid polymer composites are becoming more and more well-liked as solid state ionic semiconductors due to their extensive use in a variety of electrochemical devices, including mobile phones, smart credit cards, electrochromic devices, sensors, actuators, rechargeable batteries, supercapacitors, and so forth. Solid polymer composites offer a number of significant benefits, including a lengthy lifespan, low weight, safety, nontoxicity, good corrosion resistance, mechanical flexibility, and ease of production.1, 2 However, the absence of stability, Solid polymer composites' low conductivity, low transference number for cations, and high crystallinity have been identified as its technical drawbacks.3.In order to adjust the solid polymer composites' conductivity characteristics, numerous Techniques like plasticization, copolymerization, mixing, and salt addition are used. To improve the ionic conductivity of blend-based polymer composites, a lot of work has been done.4 Due to its high transparency, strong dielectric, and quick charge transfer at the electrode–composite interface, poly(vinyl alcohol) (PVA) is a widely utilized polymer in solid polymer composites for lithium ion batteries.

Properties of Poly (Vinyl Alcohol) Doped with Inorganic Fillers: Morphology and Mechanical

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Abstract:

Using polyvinyl alcohol (PVA) as the preorganized polymer matrix, several polymer composite films were created by biomimetic embedding of various metal salts of transition elements such as copper, cobalt, nickel, iron, cadmium, and zinc. In situ reduction of the metal salts in the composites to metallic form occurred. FTIR, SEM, and EDAX were used to characterize the composites. The homogeneous distribution of nano-sized metal particles within the polymer matrix was verified by the SEM investigation. Measurements were made of the mechanical characteristics of PVA and other composite films. When compared to PVA, a considerable improvement in a few mechanical parameters of polymer composites was observed.

Keywords: Biomimetic route, FTIR, mechanical properties, polymer composites, polyvinyl alcohol, SEM

Introduction:

Organic polymers have excellent processability and strong chemical stability. The mechanical, thermal, optical, electrical, and other properties of polymers can all be significantly improved by including various inorganic fillers.applicability in a wide range of fields, including optical devices, automotive, aerospace, military gear, safety, and protective clothes. However, the characteristics of inorganic fillers, such as their size, crystallinity, and chemical makeup, as well as the nature of the host polymer, determine the properties of polymer compositeconcentration and dispersion within the matrix of polymers. Another crucial stage in the production of composites is choosing the right polymer matrix to give them the appropriate qualities. composites. There have been reports of using a variety of polymers to process composites for various uses [1–15].However, because of its special qualities, such as its solubility in water, good film-forming character, appropriate physical properties, high hydrophilicity, and processability, polyvinyl alcohol has been widely exploited by numerous researchers to create a wide range of composites. chemical resistance, availability with varying molecular weights, non-toxicity, biocompatibility, and biodegradability [16–18]. Pure metals, metal salts and oxides, and other nanofiller It has been observed that clays, double hydroxides, etc., can form composites [11–15, 17–23].In the current work, a variety of biomimetic polymer composite films were created by incorporating differenttransition metal salts in the PVA matrix, such as cobalt, iron, nickel, copper, zinc, and cadmium. The morphological and spectral characterisation of composite materials was completed using standard methods. Neat PVA was used to determine and compare a variety of mechanical properties. It was discovered that several of the mechanical qualities had significantly improved.

Adsorption of Methylene Blue by Polyvinyl Alcohol/Graphene Oxide Composites from Aqueous Solutions

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Abstract:

Graphene oxide (GO), a recent addition to the carbon family, has demonstrated outstanding adsorption capacity to micro-pollutants in aqueous solutions. Unfortunately, its small size restricts its practical application because it is difficult to separate from aqueous solutions using traditional separation techniques.in the preservation of the environment. In this work, new PVA/GO composites were created using polyvinyl alcohol (PVA) as a carrier immobilizing GO. SEM, FTIR, and TGA studies were used to assess the morphological and physicochemical properties of the composites. Methylene blue (MB) adsorption characteristics onto the composites were examined by looking into experimental conditions including solution pH, temperature, duration of contact, and adsorbent dose. The Freundlich, Dubinin-Radushkevich, and Langmuir models were used to examine the isotherm data. At 50% GO concentration, the highest adsorption capacity was determined to be 476.2 mg/g. The intra-particle diffusion, pseudo-second-order kinetic, and pseudo-first-order kinetic models were used to investigate the kinetics of adsorption. The outcomes demonstrated that the pseudo-second-order kinetic model fit the dynamic data.

Keywords: Graphene Oxide, Polyvinyl Alcohol, Methylene Blue, Adsorption.

Introduction:

As the printing and dyeing industries grow faster, an increasing amount of wastewater containing dyes is released into the aquatic environment. These wastewaters are clearly characterized by their extreme toxicity, big volume, high color, and weak Teratogenicity, carcinogenicity, and biodegradability. MB is widely used to color fabrics, cotton, and wood. Although MB is not a particularly dangerous dye, it does have a number of negative impacts on people.1. It may, for instance, burn the eyes. It might result in nausea, vomiting, and diarrhea if consumed. Furthermore, it can result in methemoglobinemia, tachycardia, and difficulty breathing if breathed.2. Therefore, effluent that contains an excessive amount of MB needs to be treated before being released into the environment. Numerous techniques, including chemical precipitation, membrane separation, ion exchange, aerobic and anaerobic microbial degradation, and other processes, have been investigated to extract dyes from wastewater.3–5. Nevertheless, the majority of these methods are not cost-effective or efficient for eliminating dyes at lower concentrations. In contrast, because of its high efficiency and low cost, adsorption has been shown to be a straightforward and promising approach that is frequently utilized in the treatment of water purification. Six In wastewater treatment, the use of new and more potent adsorbents has been seen as a promising area.

Investigation of water sorption on altered agave fibers

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Abstract:
Water sorption research on modifiedfibers made of glass or carbon are common synthetic materials used to strengthen polymer composite products.However, natural fibers are increasingly being taken into consideration as reinforcement due to their low density and good mechanical qualities. Agave (Americana L.) fibers have undergone a number of chemical treatments to increase their compatibility with the polymer matrix and decrease their affinity for water, with the goal of creating a new natural fiber-based composite. Using a micro-balance, the impact of various treatments on the fiber's capacity for water sorption has been examined. We have calculated equilibrium water sorption isotherms based on weight changes of the fibers under increasing water vapor pressure. The water sorption isotherms have been described using models that have been tested. Over a broad spectrum of activities, it was discovered that the Park's model adequately described the experimental results. Additionally, the sorption kinetics were utilized to assess the water's diffusivity in thefibers. The triple sorption mode that Park's model describes is consistent with the fluctuation of the water diffusion coefficient with water concentration. These findings demonstrate that following chemical treatment, the fibers' overall moisture resistance increased. The cell-wall structure's structural and chemical changes are the interpretation for this impact.A number of distinct physicochemical ied Agave fibers

Keywords: Natural fibres Agave fibres Water vapour sorption Lignocellulosic Chemical modification Cell-wall structure

Introduction:

Numerous cereal straws have historically been utilized as raw materials to make paper (Atchison, Mc Govern, Kocurek, & Steven, 1983). Wood products have steadily taken the position of these basic resources, while 10% of the pulp produced worldwide comes from non-wood raw materials (Thykesson, Sjoberg,& Ahlgren (1997). The principal attraction of straw-based pulp lies in its ability to yield superior fibers with unique qualities for papermaking, as well as its status as the primary supplier of fibrous raw materials in certain regions. This is the situation in Tunisia, where the new eucalyptus wood supply is used in conjunction with alfalfa grass and agave plants as major sources of fiber (Ahrens, Gulya, Worry, & Walter, 1998; Anon, 1974). The subtropical plant agave (Americana L.) grows slowly and has long, thick leaves. It is used for ornamental purposes (yucca, century plant, and mother-in-law's tongue), therapeutic purposes (steroid extraction and pre-Columbian antibacterial salves), and commercial purposes (rope, fibers, mescal, and tequila).Natural fibers are an excellent addition to thermoplastic matrices because they produce composites that are stronger and more durable than unreinforced materials.Furthermore, linocellulosic natural fibers are typically inexpensive, plentiful, robust, and low density. Above theDuring the last 10 years, natural fibers have gained attention as a possible resource for the creation of affordable composite materials (Joseph, Thomas, & Pavithran, 1995). One issue that has hindered the application of natural fibers is the inadequate adherence to the polymeric matrix. Specifically, the high moisture sorption of natural fibers negatively impacts adhesion with hydrophobic matrix material, causing deterioration and loss of strength that results in early ageing.

Enhancing the mechanical characteristics of epoxy composites reinforced with natural fibers through alkali treatment

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Abstract:

In this article, a vacuum bagging process was used to create three bio-composites: flax, linen, and bamboo cloth reinforced with epoxy resin. The effects of an alkali treatment (with a 5 weight percent NaOH solution for 30 minutes) on the surface morphology, mechanical characteristics (including tensile and The composites' flexural characteristics) were examined. It was discovered that fiber breaking and slippage occur simultaneously in the single-strand fiber failure mechanism under tension. The flax, linen, and bamboo's tensile strength and modulus were negatively impacted by the alkali treatmyarns with only one strand. All of the composites' tensile and flexural properties, however, improved following treatment. For example, the treated flax/epoxy composite's tensile and flexural strength increased by 21.9% and 16.1%, respectively, in comparison to the untreated one. Following the processing of each composite, The fiber/epoxy interfacial adhesion on tension fractured surfaces improved.ent.

Keywords natural fabrics, composite, scanning electron microscopy

Introduction:

The last ten years have seen a significant increase in the use of high strength and stiffness synthetic fiber reinforced polymer (FRP) composites in the automotive and aerospace industries. sectors.1. Because of growing environmental concerns, bio-fibres have become more and more popular in engineering applications as a substitute for synthetic carbon/glass fibers in polymer composites.2,3 The development and application of nanotechnology has led to a resurgence of interest in bio-composites, which have bright prospects for development into the next wave of structural materials. Approximately 43,000 tons of natural fibers were utilized as composite reinforcing materials in the European car sector in 2003.5. 2010 saw the increased to almost 315,000 tonnes, or 13% of the total reinforcing materials (natural, glass, and carbon fibers) used in fiber-reinforced composites in the European Union.Six The rapid rise in bio-composites is a sign that their use in construction will expand in the future because natural fibers have favorable mechanical properties. The most often used reinforcing materials in bio-composites are flax, hemp, jute, sisal, and bamboo because they are reasonably priced, have low densities with high stiffness and specific strength, and they're easily accessible.7,8 However, there are drawbacks to natural fibers as well. For example, their mechanical and physical qualities are largely depending on location, weather, and climate, making it challenging to forecast their individual composite features.

An analysis of current research on the application of natural composites in infrastructure

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Abstract:
Natural fibers have several advantages over most synthetic fibers, including being less expensive, easier to handle, possessing superior mechanical qualities, and using just 20–40% of the energy used in manufacture. Modern building methods combined with natural materials save waste during construction and boost energy efficiency.spreading awareness of the sustainability idea. When compared to synthetic composites, natural composites have a number of disadvantages that would be even more noticeable in the context of infrastructure. These disadvantages include a higher absorption of moisture, poorer fire resistance, lower mechanical properties and durability. In an effort to solve these problems, numerous researchers have been focusing on enhancing the fiber/matrix interaction and treating fiber surfaces in particular. Owing to their optimistic outlook on the economy and the environment,Apart from their capacity to cater to global human requirements in a unique way, natural composites are also demonstrating promising uses in infrastructure.on in quality and price, and difficulty in applying established manufacturing techniques.

Keywords: A. Fibers B. Mechanical properties B. Fiber/matrix bond Natural composites

Introduction:

The three most crucial elements of physical infrastructure are steel, concrete, and wood. However, the price of these materials has contributed significantly to the rise in construction prices in recent years.far higher than the rate of overall inflation [1]. Due to a number of advantages over conventional building materials, synthetic, petroleum-based fiber reinforced polymer (FRP) composites have gained popularity recently. These advantages include: greater strength and stiffness in relation to specific gravity; increased fatigue strength and impact energy absorption capacity; improved resistance to fire, corrosion, and acid environments; longer service life and lower life-cycle costs; and nonconductivity and non-toxicity [1]. Infrastructure would gain in the long run from a greater usage of natural fiber-reinforced polymers (FRP) composites made of biopolymers and/or natural fibers. In the long run, natural fiber reinforced polymers (FRPs) could be less expensive and heavier than many synthetic composites.Natural fibers offer strong thermal and acoustic insulation qualities and are simpler to work with [2]. The primary motivation for utilizing natural fiber reinforced polymers (FRPs) over synthetic ones is their ecological advantages. Natural composites can be used to produce large-scale, biodegradable structural elements with low embodied energy by utilizing solely renewable resIn addition to meeting the requirement for rapid infrastructure, using materials such natural composites that lower construction waste and boost energy efficiency would sustainability [3].

2. Context

A wide range of materials with different physical and chemical properties are being studied for usage in natural composites. Not all products labeled as "natural" are as eco-friendly as their designation would suggest. Product biodegradability is not always correlated with natural material content; certain synthetic materials might decompose more quickly than natural ones [4]. Only short-cycle renewable plant resources would make up a perfect natural composite, and it would totally biodegrade under controlled circumstances.

Pva/Tio2 Nano Composite Coated Modified Clad Optical Fibre for Humidity Sensing Application

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Abstract:

This paper presents the synthesis of TiO2 nanoparticles using the hydrolysis method, followed by the solution process of TiO2-nanoparticle doped polyvinyl alcohol nanocomposite. Analysis techniques utilized to determine the type of the produced nanoparticle and loading include FTIR, XRD, DSC-TGA, FESEM, and TEM.consistency of the created composite material. To monitor relative humidity, a straightforward optical fiber sensor based on a modified jacket is created. Excellent relative humidity detection capability is demonstrated by coated modified clad optical fiber, which also has increased coating material thermal stability over a broad range of 9–95% RH and good process reproducibility. Additionally, it is noted that the sensor's response is extremely quick and reversible. When we compare our produced composite material to pure PVA or pure TiO2 material published in literature, its advantages become clear. It demonstrates a larger range of moisture sensitivity.The capacitance method is also used to assess the performance of the PVA-TiO2 nanocomposite thick film, and the results are shown to be consistent with coated modified clad optical fiber.

Introduction:

A physical quantity called humidity is crucial for many industrial and medical applications, including the identification of pulmonary disorders [1], the mapping of the human respiratory system [2] by measuring the amount of water vapor in exhaled breath, applications of meteorology to forecast the possibility of precipitation, mist, or fog in building automation, pharmaceutical processing, textile manufacturing, incubators, etc. As a result, humidity control, sensing, and monitoring are currently receiving a lot of attention from researchers [3]. Relative humidity (RH) has been measured for the aforementioned purpose using a variety of conventional electrical humidity sensors, including resistive, capacitive, and hygrometric ones [4]. Nevertheless, there are a number of disadvantages to these traditional electrical techniques for measuring relative humidity, including their high cost, need for frequent maintenance, incapacity to be used in dangerous or explosive settings, and interaction utilizing electromagnetic waves. Over the past few decades, the industry has continued to conduct research and experiments on polymeric humidity sensors. The majority of these sensors are made using porous polymer thin films, and their sensing mechanisms are comparable to those of metal oxide ceramic sensors [5]. The physical and chemical absorption of these components is what allows the sensor to work. moisture by the coatings and moisture condensation in the pores, changing the transducer's electrical and physical characteristics in the process. Nonetheless, there is still a lack of contentment with the market for humidity sensors based on organic polymers and their applications. in contrast to ceramic metal-oxide thick or thin film sensors, despite the fact that their development and production have steadily improved to increase their usefulness.

Smart Concretes A Review of Current Progress

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Abstract:
The most common and adaptable substance in the world is concrete. Its yearly production is one cubic metre per person, following a recent survey. Although it is an ancient material, it has undergone significant evolution over time. This essay anticipates the most recent clever advancements in this fantastic substance. This research examines several smart concrete options, such as ultra-high performance powder reactive concrete, self-cleaning concrete, self-heating concrete, and engineering cementitious composites. Concrete's strength has increased from a few hundred pounds per square inch to over 30,000 pounds per square inch thanks to current technologies.In a similar vein, concrete's applications have grown significantly across numerous industries. This discussion mostly consists of a succinct overview of all significant recent advancements. The description of these materials' composition, uses, and applications come next. This paper's major goal is to raise awareness of the significance of these concretes in the academic community and the building sector.

Key Words: Concrete, Strength, Energy, cementitious material

Introduction:

The topic of building materials is crucial to civil engineering. Concrete, steel, stones, bricks, polymers, wood, glass and several metals are essential building elements [1]. Concrete is the substance that is utilised worldwide the most out of all of these. Its yearly output is thought to be around 20 billion tonnes more than that of any other material on Earth [2, 3]. It is regarded as the foundation of civil engineering. A typical concrete mixture consists of cement, water, sand, and gravel. In order to obtain certain unique qualities that are not achievable with regular concrete, additives and admixtures are occasionally used [4].All of the other components of concrete, save cement, are readily accessible natural elements. One can simply obtain cement as an industrial material. Fresh concrete matrix hardens and achieves strength comparable to, if not greater than, that of stone when properly cured. Because of this, it is sometimes referred to as "man-made rock," and this is the key to its enormous appeal [1]. Concrete can occasionally have a variety of additional cementitious elements added to it; these are referred to as additives. Concrete adds density, improves bond quality, and becomes more chemically resistant when silica fumes are added [5-7]. In addition to silica fume, fly ash, ground granulated blast furnace slag, and numerous other pozzolanic minerals are significant additions [8]. Admixtures are an additional set of synthetic and natural ingredients added to concrete in addition to additives to enhance its properties. Plasticizers, water reducers, retarders, accelerators, and air entraining agents are among the crucial additives [9]. Concrete comes in a variety of varieties based on its composition. FRC, or fibre reinforced concrete, is a significant type in this regard. A unique kind of concrete known as fiber-reinforced is made with the addition of short, discrete synthetic or natural fibres. Among the major fibres utilised are poplypropylene, steel, and glass. This review article's goal is to draw attention to smart concretes, which have gained popularity in the building sector in recent years.

Fraud Detection for Telecommunication Systems using Artificial Intelligence (AI)

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Abstract:

Fraud is on the rise worldwide, which can cost businesses billions of dollars and cause significant financial damage. Researchers from different fields of application have proposed different approaches. Investigating these ideas will enable us to view the issues more clearly. This paper objective is to examine numerous directions of fraud detection and prevention in the communications sector. This paper provides an overview of the different classifications of telecom fraud, issues that impede the process of detection, and a few solutions suggested to overcome it. The performance of the current approaches is reported at, followed by recommendations and recommendations for picking the best fit performance metrics.

Introduction:

Telecommunications companies today have been plagued by problems for a long time now. In addition, losses resulting from fraudulent activities in companies that may not be able to stop these activities will no longer be able to retain their customers. Although, by using dynamic growth in automated systems it is possible to avoid fraud. Communication fraud causes great financial losses to group every year. It is almost impossible to calculate and disclose financial losses because of fraudulent activities within the telecommunications business, since a few companies in order to preserve their status, they decide to not divulge. Additionally, not every fraud is currently encountered by telecoms firms, it isn't always evident how successful their acquisitions processes are. Nonetheless, a conclusion was reached that telecoms fraud in 2013 grew by 46 billion globally, or around 2% in telecommunication service revenues, based mostly on some studies. Additionally, [2] claims that alleged fraud costs telecommunication firms roughly 7 percent of its revenue. Such damages might negatively impact earnings [3]. It is worth noting that even though wireless communication has emerged as the leading cause, telecommunications groups are suffering, especially in developing countries including China. In this paper, the aim is to provide an in-depth examination of various fraud-related programs, in particular fraud prevention programs and fraud prevention programs, along with strategies and challenges that cause problems in these systems. In addition, an in-depth examination of the various test metrics used for the full range of performance is achieved to understand the high metrics used and appropriate for communication fraud.

Max-Min Ant Colony Optimization: Energy Efficient Consumption in Cloud Load Balancing and Consolidation

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Abstract:

Cloud computing provides multiple services in various data-centers where "on-demand" re-sources areprovided to the users. With the high utilization standard of cloud data-centers, the amount of data flow in datacenterget over larger. An efficient replacement of virtual machine (VM) among physical machines (PMs)improves resource utilization and efficiency. The various conventional load balancing methods are notperforming up to the mark, and they are not deliberating the parameters of "service level agreement" (SLA)while deciding virtual machine migration. In this paper, we are presenting an efficient energy consumptiontechnique in cloud load balancing and consolidation based on MAX − MIN Ant Colony Optimization (ACO)algorithm. Experimental results represents that, the proposed MAX − MIN (ACO) method performs better thanstatic and dynamic virtual machine migration methods in context of energy consumption.

***Keywords*:** Cloud Computing, MAX − MIN ACO, Virtualization, VM Migration, Consolidation, Data- Centers.

Introduction:

Cloud computing is a service which present the cooperation among cluster of physical machines and theirservices through the network and these powerful services are provided to end users [1]. The fundamentalconcept of cloud computing is combining distributed computing with grid computing. It has become trulysignificant to manage and control the data-centers as well as its resources due to high usage of large datainformation over the Internet [1][2].The various virtualization methods have been proposed for suitable utilization of cloud resources. The hugenumber of virtual machines (VMs) are generated on the limited number of servers and each user works on theirautonomous machine by using this technology. The data-centers are unequally loaded of tasks according to therequest of end users. So there are the crucial issues such as load balancing, consolidation, power management,efficient resource utilization and service level agreement (SLA) which have to be controlled and managed[3][4].The virtual machine (VM) migration supports management of the high load within cloud computingenvironment using live migrations. The VM migration is the process of moving the virtual machines from onehysical machine into another within same data-centers or other and also balance the resource utilization amongall the servers. The process of VM migration within cloud computing illustrated in Figure 1. The live migrationis considered as the primary feature of VM migration, it essentially transfer the overall working state virtualmachine from one server host into another. In cloud computing network, the live migration is essentially usedfor load balancing, consolidation, task scheduling, fault tolerance, maintenance of system, energy consumption and green computing [5][6]. The methods are applied in live migration are pre-copy, post-copy and hybrid live
VM migration [7].

Strength Characteristics of Self-Compacting Concrete Incorporating Waste Foundry Sand

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Abstract:
A byproduct of the ferrous and nonferrous metal casting processes is foundry sand. Sand is a thermally conductive material that has been utilized in molding. Metal is used for casting purposes in metal foundries. Sand from foundries will be recycled and utilized again. The foundry will get rid of any leftover waste sand. The uses of ecologically acceptable foundry sand in civil engineering disciplines will be covered in this lesson. This solves the issue of how to Foundry sand is made up of silica sand that has been lightly covered in dust, leftover binder, and burned carbon. Both partial and complete replacement of fine particles can be accomplished with foundry sand. The replacement percentages by weight of fine aggregate were 10, 20, and 30%. In this case, we looked into how foundry sand affected the compressive strength, split tensile strength, and elastic modulus of concrete. Tests were run at several times during the course of the cure, namely 7, 14, 28, and 56 days. The modulus of elasticity, split tensile strength, and compressive strength have all increased, according to the test results. Therefore, adding foundry sand to concrete for strength and durability is safe. dispose of foundry sand.

Key words: Foundry sand, Fine aggregate, Compressive Strength, Split Tensile strength, Flexure *strength*

Introduction:

High-grade silica sand with consistent physical properties is known as foundry sand. Sand is a byproduct of the ferrous and nonferrous metal casting industries, where its thermal conductivity has been employed for millennia as a molding medium. It is a byproduct of the ferrous and nonferrous metal castings that are produced. The type of casting method used and the industry sector it comes from will have a significant impact on the physical and chemical properties of foundry sand. Sand is usually recycled and reused across numerous manufacturing cycles in contemporary foundries. According to industry estimates, about 100 million tons of sand are produced annually; of those, 6–10 million tons are dumped each year and can be recycled into other goods.Compared to the usual bank run or natural sands used in fill construction sites, the raw sand is typically of a higher quality. The mold cavity's outside is shaped by the sands. Typically, these sands use a tiny quantity of bentonite clay as the binder material. Sand "cores" can also be made with chemical binders. Sand cores are placed into the mold cavity to create internal passageways for the molten metal, depending on the casting's design. During the shakeout process, the casting is taken out of the molding and core sands after the metal has formed. Molding sands are recycled and utilized again during the casting process. But eventually, the recycled sand deteriorates to the point where it can no longer be used. throughout the casting procedure. At that moment, fresh sand is added, the cycle restarts, and the old sand is removed as a byproduct. Figure 1.3 depicts a schematic of the movement of sands through a typical foundry. Sand casting is by far the most often used mold casting process, while other casting techniques are also utilized, such as die casting and permanent mold casting. Sand is used in metal castings in two separate ways:

Studies on the Strength and durability of SCC Using Ultra- Fine GGBS and Silica Fume

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Abstract:
One of the main disadvantages of self-compacting concrete (SCC) was the cost involved with applying a lot of cement and synthetic admixtures; however, this cost can be decreased by using supplemental cementitious materials (SCM). Reducing the demand for cement will result in less carbon dioxide (CO2) being released by the cement industry, which will mitigate global warming. The pre-sent study describes an attempt in this regard by conducting an experimental investigation on the mechanical and fresh properties of SCC by substituting SCM, such as ultra-fine ground granulated blast furnace slag (GGBS) and silica fume, for cement in varied ratios. By maintaining the water-binder ratio and adjusting the dose of the superplasticizer (SP) in relation to the total cementitious material, the SCC mix was produced. SCC mixes with 10% silica fume and alcofine combined, which provided the best strength, were chosen in addition to the mechanical qualities to evaluate durability concerns. When compared to alternative combinations, 10% silica fume produced the greatest results in both mechanical and durability examinations. The determination of the optimum combination, including both silica and alccofine, was carried out using a statistical approach employing Design of Experiments (DOE). By adjusting the superplasticizer dose, the DOE findings indicated that the ideal dosages of silica fume and alccofine were 6% and 8%, respectively, and that this also fulfilled the SCC property.The mixture mix's mechanical qualities as determined through experimentation agreed with the DOE's findings.

Introduction:

The development of self-compacting concrete (SCC) occurred in Japan as a result of the country's declining skilled labor force and consequent decline in building industry quality. Ozawa's 1989 paper presentation on SCC increased its level of international attention (Caijun Shi. Et al.2015).Benefits of SCC include reduced labor costs, safety as a result of a lower human risk, quicker construction, better interfacial transitional zones (ITZs), enhanced durability, reduced permeability, increased designing freedom, higher-quality production, and well-executed structural design (P. Ramanathan et al,2013). Because SCC uses large amounts of cement and chemical admixtures, one of its main disadvantages is its cost (Zdzis awa Owsiak, Wioletta Grzmil,,2015). Concrete becomes more durable when pozzolanic ingredients are used, which lowers the need for cement (Ha Thanh Le, Horst-Michael Ludwiga,,2016). Strong structures with less repair needs over time will be the result of this (BeatałLaz´niewska-Piekarczyk,2013). Supplementary Cementitious Materials, or SCM, can improve SCC's strength, durability, economics, and impacts from insufficient compaction (Mucteba Uysal, Mansur Sumer,2011). The pozzolanic reaction that takes place during the cement's hydration phase is what increases the durability of concrete with SCM. The most often utilized SCMs were fly ash, metakaolin, rice husk ash, ground granulated blast furnace slag (GGBS), and silica fume (SF) (S. Kavitha et .al ,2016). Gels of calcium hydroxide (CH) and calcium silicate hydrate (C-S-H) were generated during cement hydration. The most soluble hydration product, CH, was a weak bond in cement. Concrete becomes more porous and vulnerable to leaching and chemical incursion when exposed to water because the CH dissolves in it (SandraJuradin,DrazˇanVlajic´,2015). The pozzolanic elements that are added to SCC create pore refinement, which prevents water and other chemicals from passing through.SCC has a lower viscosity than regular concrete, which results in a greater flow rate when pumped. SCC needs control over the aggregate's volume, grading, and

Parameters for calculating the genetic algorithms fitness function in intrusion detection

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Abstract:
Securing network system from several new attacks is a challenge in recent years. Hence intrusion detection is becoming one of the key security components in network security. Several soft computing approaches are applied for applying intrusion detection in recent years, Genetic Algorithm isa powerful, robust optimization soft computing approach which is suitable for intrusion problem. The success of Genetic algorithm process depends on Fitness function which is used in genetic algorithm. This paper suggests various existing fitness functions. The paper also proposes parameters for deriving new fitness function.

***Keywords*:** Intrusion Detection, Genetic Algorithm, Fitness Function.

Introduction:
Rapid growth of Internet, computer systems are facing number of security threats. To preserve the integrity,confidentiality and available of data, in computer many efforts have been made like encryption, firewall, antivirussoftware etc. With this Intrusion detection is also added as a compliant to detect malicious behaviors whenoccurs [1]. Genetic Algorithm applied on Intrusion Detection increases high detection rate.In this paper an analysis on various fitness function of genetic algorithm used in intrusion detection is done.Parameters for constructing a fitness function is suggested by considering the drawbacks of various fitness function.

Genetic Algorithm is an evolutionary and soft computing approach to support intrusion detection. Genetic algorithm is a problem solving method that uses genetics as its model of problem solving. It's a search technique to find approximate solutions to optimization and search problems. GA handles a population of possible solutions of optimization problem. Each solution is represented through a chromosome, which is just an abstract representation [3]. Genetic Algorithm work begins with a set of solutions called initial populations. The solutions are evaluated by fitness function and sequence of operations namely selection, crossover, mutation and replacement are applied. The base for all operations is fitness function [4].The process is repeated until the termination condition becomes true. The termination condition is a convergence criteria which may be maximum number of generations, elapsed time, no improvement in the fitness function of the chromosomes Intrusion Detection System (IDS) is classified in to two categories: Host IDS (HIDS) and Network IDS (NIDS). HIDS run on individual hosts or devices on the network. A HIDS monitors the inbound and outbound packets from the device only and will alert the user or administrator for any suspicious activity detected. NIDS are placed at a strategic point or points within the network to monitor traffic to and from all devices on the network.

Mobility Prediction Based on Machine Learning

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ABSTRACT-

Mobile applications are required to operate in highly dynamic pervasive computing environments of dynamic nature and predict the location of mobile users in order to act proactively. We focus on the location prediction and propose a new model/framework. Our model is used for the classification of the spatial trajectories through the adoption of Machine Learning (ML) techniques. Predicting location is treated as a classification problem through supervised learning. We perform the performance assessment of our model through synthetic and real-world data. We monitor the important metrics of prediction accuracy and training sample size.

INTRODUCTION-

Individual-based prediction considers a users movement behaviors to be independent of each other, so only the trajectories of the specific object itself are used for the prediction. Regarding the spatial and temporal aspects of trajectory data, time series analysis is first introduced to predict objects further locations and then Markov model and machine learning techniques are investigated. In the authors present a time-ordered vector to model the movement history of customers, while in the authors proposed a classification tree to model the contextual aspects of the trajectory data.

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Regarding the spatial and temporal aspects of trajectory data, time series analysis is first introduced to predict objects' further locations and then Markov model and machine learning techniques are investigated. The authors present a time-ordered vector to model the movement history of customers, while in the authors proposed a classification tree to model the contextual aspects of the trajectory data. Other studies focusing on forecasting the further whereabouts of users in the constrained road networks are also investigated

Artificial Intelligence & Its Applications

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ABSTRACT

It is the science and technology of making intelligent machines, especially intelligent computer programs. It refers to the similar task of using computers to understand human intelligence, but AI need not be limited to biologically observable methods. Although there is no agreed definition of artificial intelligence (AI), artificial intelligence is generally characterized as the study of computations that enable perception, reason and action. Today, the amount of data produced by both humans and machines far exceeds the ability of humans to absorb, interpret and make complex decisions based on that data. Artificial intelligence is the foundation of all computer learning and is the future of all complex decisions in the making. This article explores the characteristics, introduction, definition, history, applications, growth and achievements of artificial intelligence.

INTRODUCTION

Artificial intelligence (AI) is a branch of computer science that deals with the intelligence of machines, where an intelligent agent is a system that takes actions that increase its chances of success. It explores the ideas that enable computers to do the things that make humans intelligent. The central principles of artificial intelligence are reasoning, knowledge, planning, learning, communication, perception and the ability to move and manipulate objects. It is the science and technology of making intelligent\machines, especially intelligent computer programs. The first significant researcher in the topic he named "machine intelligence" was Alan Turing.[2] The academic field of artificial intelligence was established in 1956.[3] The field had several cycles of optimism,[4][5] which were followed by "AI winter"—a time of dejection and funding cuts.[6][7] After deep learning outperformed all earlier AI techniques in 2012,[8] and after the transformer architecture was introduced in 2017, funding and attention skyrocketed.[9] As a result, there was an AI spring in the early 2020s, when major advancements in artificial intelligence were pioneered mostly by American businesses, academic institutions, and labs.[10] The increasing application of AI in the twenty-first century is driving a transition in society and economy toward more automation, data-driven decision-making, and the integration of AI systems into a wider range of domains, including government, industry, education, healthcare, and the labor market. This prompts talks about regulatory rules to assure the safety and advantages of the technology and raises concerns about the ethical implications and risks of AI.

Machine Learning in Agriculture Development

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ABSTRACT –

Prevention and early detection of plant diseases is one of the main issues and challenges in agriculture. Farmers spend a lot of time observing and detecting diseased plants, often by looking at and analyzing plant leaves. Inadequate handling of plant disease such as late detection or the use of wrong pesticides often causes damage to crops, which causes a deterioration in the quality of food. This problem could be addressed using artificial intelligence and machine learning to detect plant diseases by processing digital images of leaves. As the leaf is the best indicator of whether the plant is healthy or not, by applying machine learning we can create predication models to detect the condition of the leaf in a shorter period of time and possibly prevent or reduce the losses.

INTRODUCTION-

This paper describes experimenting with Detectron2 software library and Faster R-CNN neural network in order to detect the condition of the leaf. A dataset containing 6407 images was used to train the model. The original dataset has been extended by augmenting images using the RoboFlow tool. The experimentation and implementation was done using Google Colab, environment designed for cloud computing and machine learning development. This problem could be addressed using artificial intelligence and machine learning to detect plant diseases by processing digital images of leaves. As the leaf is the best indicator of whether the plant is healthy or not, by applying machine learning we can create predication models to detect the condition of the leaf in a shorter period of time and possibly prevent or reduce the losses. Google Colab, an environment for cloud computing and machine learning development, was used for the experimentation and implementation. By processing digital photos of leaves, artificial intelligence and machine learning could be used to detect plant diseases. Since leaves are the greatest way to tell whether a plant is healthy or not, we may use machine learning to build prediction models that can identify a leaf's state more quickly, thus preventing or reducing losses.

Artificial Intelligence Applications on Past and Future

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ABSTRACT-

This article is a reflection on the goals and focus of the Innovative Applications of Artificial Intelligence (IAAI) Conference. The author begins with an historical review of the conference. He then goes on to discuss the role of the IAAI conference, including an examination of the relationship between AI scientific research and the application of AI technology. He concludes with a presentation of the new vision for the IAAI conference.

INTRODUCTION-

This conference has undergone modest evolution, but a significant transformation is being planned for the next meeting. Therefore, it seems an appropriate t ime to reflect on the goals and focus of the IAAI. Begin with an historical review of the conference in which examination is done on t he content, t he organizational forms, and the themes that have dominated the various meetings of the conference over its eight years. I then turn to the topic of what role the IAAI conference serves in the overall mission of the American Association for Artificial Intelligence (AAAI). This discussion involves examining the relationship between AI scientific research and the application of AI technology. I review how the past chair people of the IAAI have understood the mission of the conference and then suggest that an important part of the mission has not adequately been addressed. Finally, I conclude by presenting the new vision After many years of high ambitions and optimistic predictions, by the mid-1980s, it had become clear that AI research was leading to successful applications.

The biomass cook stove's design and performance assessment

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Abstract

The ineffective and environmentally hazardous biomass cook stoves that are currently found in many Indian homes might be replaced by coal cook stoves, which could significantly enhance the health and welfare of the most vulnerable and marginalized segments of society. In addition, by substituting advanced-combustion biomass stoves for conventional home cooking fuel, it is possible to virtually eliminate the various harmful byproducts of incomplete combustion that are caused by current practices. These byproducts are major causes of greenhouse gas emissions and outdoor air pollution. Many biomass cook stoves are currently available on the market, however because the fuel does not burn fully and the intended flame control is not achieved, their efficiency is reduced. This study presents the design of a smokeless, renewable cook stove with suitable flame control, blue burning, and increased overall efficiency.

Keywords — Biomass Cooks Stove; Flame Control; Thermal Efficiency

INTRODUCTION

Fuel serves as the main source for energy collection. Historically, fuels such as wood, cow dung cake, coke, agro-waste, etc. were used inefficiently for a variety of daily purposes. Since wood is a prime fuel and is inexpensive and readily available, it is used widely. Burning wood releases smoke and unburned carbon into the atmosphere. Both the environment and people are equally impacted by these leftovers. It is necessary to burn the fuel on hand as cleanly and effectively as possible to reduce pollution. One of the main fuels utilized globally is biomass. It is mostly used extensively for drying, space heating, and cooking. Therefore, among biomass-fired technologies, the biomass cooking stove is the primary thermal energy conversion equipment. As of right now, 38% of people worldwide and 66% of people in India use biomass stoves for cooking. Numerous biomass cook stoves, both for residential and commercial usage, are inefficient in terms of producer gas combustion and heat loss. Making the stove more emission-free and fuel-efficient is therefore the main goal. The biomass cook stove is designed to meet both residential and commercial needs. The goal of design is to reduce emissions and increase fuel efficiency in stoves. Achieving the blue flame of burning, which signifies full fuel combustion, is extremely challenging. With regard to this issue, the following goals were established:1. To create a novel type of biomass cook stove that uses sawdust pellets as fuel. 2.To ensure full combustion, reach the blue flame.3. Reduce the amount of heat that the biomass cook stove loses.4. In light of this, BIS recommends increasing the biomass cook stove's thermal efficiency.

Research Methods for Participant Observation

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Abstract
This paper discusses the role of the researcher as a participant observer and reflective practitioner. The paper aims to assess the benefits and limitations of participant observation, and offer guidance as to how to manage the challenges inherent in this technique. The paper draws on the lead author's experience as a participant observer when working on her doctoral thesis: 'Factors Affecting the Viability of Electronic Marketplaces: an Empirical Investigation into International Steel Trading'. It discusses the issues and concerns resulting from participant observation and how these were dealt with in the case example.

Introduction

The empirical research was a longitudinal study tracking the evolution of steel electronic commerce between December 1998 and the present time. The events examined in this study were observed during the lead author's ten years at a large steel producer trading house. As a trader and a manager, the lead author was directly involved in the conduct of business. The paper draws on the lead author's experience as a participant observer when working on her doctoral thesis: 'Factors Affecting the Viability of Electronic Marketplaces: an Empirical Investigation into International Steel Trading'. It discusses the issues and concerns resulting from participant observation and how these were dealt with in the case example. The main objective of the paper is to (a) introduce Artificial Intelligence in HRM, so that through its intelligent methods it can help HR in making good intelligent decisions during the recruitment process, (b) to bring out the reasons for choosing Artificial Intelligence in HR and (c) the challenges that the HR is facing with the introduction of Artificial Intelligence in the recruitment process. The methodology used for this research is the literature review of various conceptual papers, peer-reviewed journals, and articles. The empirical research consisted of a longitudinal study that followed the development of electronic steel trade from December 1998 to the present. The study's events were witnessed by the principal author throughout his ten years of employment at a sizable steel producer-trading firm. The primary author was intimately involved in the management and trading of the company. The principal author's PhD thesis, "Factors Affecting the Viability of Electronic Marketplaces: an Empirical Investigation into International Steel Trading," depends on her experience as a participant observer. It talks about the problems and worries that came up during participant observation and how the case example addressed them.

Tribological aspects of aluminum metal-matrix composites for automotive applications

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Abstract

Although aluminum alloys are appealing for automotive applications due to their many mechanical and physical qualities, their resistance to galling and seizure is very low. Superior metal-matrix composites (MMC) with precisely balanced mechanical, physical, and tribological properties are produced when aluminum alloys are reinforced with hard ceramic particles, whiskers, and short fibers. Near net-shape components can be produced by using advanced manufacturing technologies, such as squeeze injection molding, which involves pouring molten alloys into fiber assemblies. Several effective applications of Al MMCs in the automotive industry include integrally cast MMC engine blocks, connecting rods, brake rotors, and pistons. An overview of the tribological behavior of Al MMCs reinforced with solid lubricants, hard particles, and short fibers is provided in this research, along with information on the technologies used to create car parts using these innovative materials.

KEY WORDS: aluminum composites, wear, friction, automobile engine parts, tribology

1. Introduction

We express our gratitude to the editors of Tribology Letters for providing us with the chance to participate in this Dr. Michael Gardos-themed special edition. Mike Gardos initially met one of the coauthors of this paper (SVP) at Wright Patterson Air Force Base in Ohio when the latter traveled to the US in early 1990 to further his studies on the tribology of metal-matrix composites (MMC). Before the introductions could even begin, Mike leaped up and declared, in true Gardosian fashion, that no one in his right mind would ever contemplate aluminum for sliding contact applications. Gardos was employed by Hughes Aircraft Company at the time, which was a subsidiary of The General Motors Corporation. Mike immediately changed from being a skeptic to a mentor and stayed a lifelong friend after learning about the Japanese exploits of this technology for commercial applications (such as Nissan's Al-SiC connecting rods, Honda's integrally cast Al MMC engine blocks, and Toyota's sulfur reinforced Al MMC diesel engine pistons). Indeed, Gardos's first intuition was spot on, as aluminum shows little resistance to galling and seizures [1]. However, aluminum alloys have several qualities that make them desirable for use in automotive applications, including low density, strong corrosion resistance, low thermal expansion, and well-established casting methods for large-scale manufacturing [2]. The development of MMC science

Synthesis and characterization of iron-based composites reinforced with TiB2

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ABSTRACT

The titanium dioxide (TiO2), boron trioxide (B2O3), and blue dust (mostly Fe2O3) were reduced using an alkalinothermic method to create the TiB2-reinforced iron matrix composite (Fe-TiB2). This process was straightforward and economical. Due to their extremely exothermic character, aluminothermic reduction of these oxides effectively results in self-propagating high-temperature synthesis (SHS) of TiB2-reinforced Fe-based composites.X-ray diffraction (XRD), image analysis, scanning electron microscopy (SEM), and hardness assessment have since been used to characterize the composite.Fe2B has been found to form during the synthesis of the composite in addition to TiB2.This technique produces composite, which has great thermal stability and hardness.When the composite's abrasive wear resistance was compared to that of a conventional wear-resistant material—high-chromium white cast iron—it was discovered to be superior.

*Keywords:*Ironmatrixcomposite;TiB_2;Aluminothermicreduction;Microstructure;Hardness;Wear resistance

INTRODUCTION

Even now, the hunt for better wear-resistant materials has been given top importance in the field of materials research. While there is currently a large supply of wear-resistant materials, research is always being done to develop new materials with higher qualities and at a lower cost than the ones that are currently available. Hot work tool steels, for instance, are widely utilized in die-castings, forging dies, punches, and a number of other hot working components. Although these steels are quite strong and machinable, their wear resistance is poor. Reinforcement using strong ceramic particles may help them to be more wear resistant[1]. With the exception of this particular instance, composite materials containing steel matrix and ceramic particle reinforcements offer a range of reasonably priced wear-resistant parts to be produced.However, a small number of composites made of iron and steel have recently surfaced; these materials are inexpensive, adaptable, and have reasonably acceptable mechanical qualities [2]. For the reinforcement of several kinds of steel matrices, the most widely employed ceramic particles are oxides (like Al2O3 and ZrO2), nitrides (like TiN and Si3N4), and carbides (like TiC,Cr3C2,VC, and B4C)[3].Due to TiC's capacity to increase the material's wear resistance, the bulk of these composite materials use

Improvements to the thermal efficiency of a biomass stove for a steaming process in Thailand

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ABSTRACT:

The new steaming stove is designed to be powered by biomass fuel. The new design aims to achieve higher total thermal efficiency than a traditional stove.The normal water-boiling test is used to calculate the stove's thermal efficiency and compare it with conventional stoves that use eucalyptus wood as fuel. Rice husk ash is packed inside the double-wall, insulating cooktop structure. Results show that the thermal efficiency of the new stove is 15.17% compared to that of the old stove. 15 has an efficiency of 21.21%. There is a 15.20% decrease in fuel use (25.8 g/kg-product). resulting in a $190 yearly savings on gasoline expenses. The stove has a $268 total cost, which means it will take 1.2 years to pay for itself. Additionally, the fuel savings would translate into a 9.9 tCO2/year decrease in greenhouse gas emissions. Keywords: Stove, energy saving, thermal efficiency

1. Introduction

Transportation, agriculture, and manufacturing—the three sectors that propel national economies—all depend heavily on energy. Wastes of materials and energy are typically the result of inefficient procedures in small-scale manufacturers, such as those who make goods locally. A maker of germinated brown rice in Bann Noi Jom Sri, Sakon Nakorn province, Thailand, is the subject of this study's case. Inefficiencies in the production process have been examined and found.The rice is soaked, steamed, then dried in the sun during the production process. Rice that has germinated is partially cooked over a steaming stove. The rice is cooked by the steam produced by the burner using wood as fuel. When rice is partially cooked, the desired point of growth is reached. Eucalyptus wood is used as fuel in a traditional stove used for the steaming process. It is discovered that the stove loses energy as exhaust gas, heat loss via the sidewalls, and heat loss through the front opening (Fig 1.). The typical stove's low thermal efficiency is a result of these losses. A conventional stove has been enhanced by Kandpal and Maheshwari (1994) by extending the steaming area and incorporating a flue stack. As a result, the amount of wood fuel used drops from 25 g/min to 16.67 g/min. According to Bhattacharyac and Salam (2002), the improved biomass stove they developed has a better efficiency of 13–40% compared to the many old biomass stoves in Asia that have thermal efficiencies of 5–20%. When researching traditional wood-burning stoves in Mexico, Berrueta et al. (2008) found that adding a flue stack and utilizing cement for the stove's walls increased the stove's thermal efficiency. The common water-boiling test is used to gauge stove efficiency. The test results indicate a 30% high efficiency. A 5-kW natural

ICMRI/2018/197

Machine Learning Techniques Comparison for Aviation Applications

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ABSTRACT-

Machine learning is becoming a very popular way to find patterns in complex data. With the advancements in the storage and computational capabilities, a lot of machine learning techniques are becoming suitable for real-world applications. In author's canvassing of literature, the adoption of machine learning techniques in the aviation community is low as compared to other communities, predominantly due to unavailability of access to high-quality data and high reliance on simple, easily interpretable models as compared to complex predictive models. In addition to these, the taxonomy differences between computer science and aviation community also makes the adoption difficult. In this paper, we perform a comparative study of popular supervised machine learning techniques for aviation problems using an air travel demand modeling problem as an example. We implement Classification and Regression Trees, Support Vector Machines, Neural Networks, and Ensemble Methods on the air travel demand estimation and forecasting problems.

INTRODUCTION-

Manufacturing is able to expand due to the quick development of ICT and internet of things-related technologies. When CPS and IoT are used together, intelligent, adaptable systems with self-learning capabilities can be produced. Big data is needed in order to create flexible and intelligent systems. Machine learning is an essential component of knowledge discovery in databases (KDD) of large data, working in tandem with data mining, statistics, pattern recognition, and other techniques. ML is widely used in many manufacturing industries as a component of intelligent systems, and its methods are intended to extract knowledge from already-existing data. The process of making decisions or predicting the production system is aided by the fresh information. However, detection is the final objective of ML approaches. With the help of this work, we plan to provide a qualitative comparison of these techniques to serve as a guideline on choosing a suitable algorithm for a given problem.

Happy Workplace

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Abstract

In psychology study, happiness—defined as pleasant feelings and emotions, well-being, and good attitudes—has been receiving more and more attention. The pursuit of pleasure has expanded to include experiences at work.The definition, causes, and effects of happiness at work are reviewed in this study, which also incorporates analysis from the growing body of research on happiness in positive psychology.There is a strong argument that a number of discrete organizational behavior constructs have some shared causes and outcomes with a broader family of constructs linked to pleasure. Job satisfaction is just one aspect of happiness at work; there is much more to it. A thorough assessment of happiness at the person level might take into account emotional organizational commitment, job satisfaction, and work engagement.The notion and measurement of happiness has been (and should be) applied to a number of levels, including transitional experiences, stable person-level attitudes, and collective attitudes, as well as a number of focuses, including specific events, the work.

Introduction

Most individuals place a high value on happiness, and most civilizations have been shown to view happiness as a highly desirable aim (Diener 2000). Joy, or happiness, is a characteristic of all "basic" human emotions. Human experience is fundamentally based on happiness, and most people experience some degree of happiness most of the time (Diener and Diener 1996). Since the beginning of written history, philosophers have been interested in happiness (McMahon 2006), but psychology research has only just begun to focus on this topic.In contrast to the previously prevalent disease model, which directed attention proportionally to sickness, depression, stress, and other negative states, the growth of positive psychology over the past ten years (Seligman and Csikszent-mihalyi 2000) has legitimized attention to happiness and other positive emotions.

The goal of this review is workplace satisfaction. The movement toward positive psychology in general has motivated organizational researchers, who have started to explore positive organizational behavior (Luthans 2002; Wright 2003) and positive organizational scholarship (Cameron et al. 2003). However, there is still disagreement over the precise meaning of these terms and their potential value (Fineman 2006; Hackman 2009; Luthans and Avolio 2009; Roberts 2006). A variety of organizational behavior components seem to share some similarities with the general idea of workplace happiness, as will be discussed below. Three sets of issues about happiness are addressed in the pages that follow:(1) How is pleasure defined and quantified? (2) What are the causes of happiness? (3) What happens when someone is unhappy? I begin each question with a quick summary of what is understood about happiness in psychological literature.

Creation of Greaseproof Paper from Banana Pseudostem Fiber for Butter Packaging

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Abstract

A project was conducted to use banana pseudostem fiber to create greaseproof packaging paper. Banana fiber was processed into kraft pulp by beating it to 60°SR and 70°SR freeness. The resulting hand sheets (40 ± 1 g/m2) were then coated with sodium alginate (3% and 5% w/v) and carboxymethyl cellulose (3% and 5% w/v). The mechanical (tensile index and bursting strength) and barrier (contact angle, grease resistance, and air resistance) characteristics of hand sheets were examined. Significant differences among the treatment were found for all the responses studied. Results obtained for 'turpentine oil test' showed that hand sheets made at 70°SR and subsequently coated with 3% and 5% carboxymethyl cellulose had grease resistance properties. It was observed that hand sheets (70°SR) coated with 5% carboxymethyl cellulose possess maximum tensile index (65.00 ± 3.46 Nm/g), burst strength (3.76 ± 0.21 kg/ cm^2), contact angle (41.27 ± 0.45º), and air resistance (29.95 ± 0.38 s/ 100 ml). However, if the amount of coating absorbed per unit area of thesheet is taken into consideration, handsheets produced with 70ºSR pulpfreeness in combination with 3% carboxymethyl cellulose coating seem to be more efficient and can be used for packaging of butter.

KEYWORDS

Greaseproof paper; carboxymethyl cellulose; sodium alginate; banana fiber; mechanical properties; barrier properties

Introduction

Butter and other high-fat foods are packaged in greaseproof paper. The primary functional characteristic of greaseproof paper is its ability to withstand grease, fat, and oil (Kuusipalo 2003). Typically, its base weight is in the range of 30 to 50 g/m2 (Paulopuro 2000). Paper is made in paper mills using finely ground wood pulp. Extended periods of beating lead to the breakup of cellulose fibers. A paper with a closed surface structure and few big surface pores is produced by these fine fibers (Stolpe 1986). Moreover, to enhance its barrier qualities, this high-density paper is coated with starch, carboxymethyl cellulose (CMC), and polyvinyl alcohol (PVOH) in addition to fluorochemicals or sodium alginate (SA) (Kjellgren et al. 2006). The demand for greaseproof paper has increased as it is being used not only for the packaging of fatty food but also in fast food shops and for home baking. The global sales of greaseproof paper are expected to reach 506.04 K MT in 2022 (QY Reports). Therefore, there is a need to search for alternative fiber-

Marketing Strategy

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ABSTRACT

Marketing strategy is a construct that is the conceptual core of the field of strategic marketing and a central part of marketing practice. This is also the area where many of the most pressing current challenges identified by marketers and the CMO emerge. We develop a new conceptualization of the marketing strategy domain and subdomains and use this lens to assess the current state of marketing strategy research by examining articles from six of the most influential marketing journals that published such articles between 1999 and 2017. We find significant challenges in marketing strategy research, including the increasingly limited number and focus Of research and the declining use of both theory and basic research deigns. However, we also find many opportunities to develop important and highly relevant new marketing strategies. The number and importance of unanswered marketing strategy questions and the potential to influence practice has probably never been greater. To guide such research, we are developing a new research agenda that offers researchers the opportunity to develop new theory, reinforce clear relevance and promote improved practice.

INTRODUCTION

In marketing, the development and implementation of the marketing strategy are central. Recent reports on the key challenges facing marketers reveal many questions in the field of marketing strategy, including: (i) how to create organizational structures that better enable the development of marketing strategies that help navigate and adapt to changing customers and business. . needs; (ii) how to choose the optimal set of marketing strategies to achieve results based on competing priorities and multiple internal and external stakeholders; and (iii) how to guide leaders across the company to develop and implement strategies that increase customer focus and engagement. Because marketing strategy is central to practice, it is also central to business school pedagogy, to marketing theory explanations of firm performance, and to the research of academic researchers. Although research interest in the general field of strategic marketing (ie, marketing-related phenomena and decisions relevant to understanding the long-term performance of products/brands, SBUs, and firms) has grown, it remains unclear. how much of this research relates to marketing strategy—a central construct in the field of strategic marketing.

ICMRI/2018/201

An examination of biomass gasification modelling

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ABSTARCT

Biomass presently provides around 10% of the energy produced worldwide. This ten percent comes mostly from biofuels made from fermenting corn and sugarcane. Fermentation of sugarcane fuels deforestation, whereas fermentation of corn endangers the world's food supply. Therefore, if these two bio-based energy sources remain sustainable and renewable, their rise—despite being economically feasible—may not be desired. In contrast, biomass gasification offers significantly more flexibility in terms of the bio-feedstock or waste that may be handled to either manufacture biofuels or to co-generate power and heat on demand. Fluidized bed and entrained flow gasifiers currently achieve potential economies of scale for fuel production, while downdraft gasifiers are best suited for small-scale heat and power cogeneration. Because it offers more options for producing fuel and energy from different types of feedstock, biomass gasification is growing in popularity. Additionally, its adaptability fuels future implementation and research opportunities. Research development is accelerated by the modeling task. In the topic of biomass gasification modeling, this study is the first to compile and analyze data on the growing number of studies and approaches used in gasification modeling. The frequency of the various modeling decisions used and the trends this data reveals are reported. This article provides a brief summary of the modeling choices that need to be made at the beginning of a modeling study or project for inexperienced researchers. A detailed description of the approach is provided, along with significant modeling choices that were not particularly covered in earlier evaluations. Instead of providing an ad hoc or anecdotal picture of what their colleagues are doing, this study provides experienced researchers with the first statistical picture.

Keywords: Biomass Gasification ,Equilibrium model,Stoichiometric model, Kinetic model, Tar

Introduction

Currently, 81.4% of the world's major energy demands are met by the top three fossil fuels: oil, coal, and natural gas. About 9.7% of the total comes from waste and biomass, primarily ethanol and biodiesel. This represents the second-largest contribution. Nuclear power accounts for 4.9% of global energy consumption, hydroelectric power for 2.5%, and the rapidly growing renewables—wind, solar, and geothermal—for about 1.5% [1-3]. Using fossil fuels to generate energy has negative impacts on politics, society, and the environment. Fossil fuel burning has

Analyzing coal gasification slag's characteristics and layered application

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Abstract

A significant external reliance on natural gas and oil, less oil and gas, and an emphasis on opportunities for the coal chemical industry are some of the energy structural elements of rich coal that result from the efficient and clean use of coal. But as coal gasification technology has become widely used, the amount of coal gasification slag produced and stored as a result has increased. This has a negative impact on the long-term viability of coal chemical companies as well as gravely pollutes the environment and wastes terrestrial resources. Consequently, treating coal gasification slag is essential. Consequently, it is essential to handle the slag following coal gasification. This paper presents the formation, composition, morphology, particle size structure, and water-holding properties of the coal gasification slag. Processes involving carbon ash are also included.Slag separations from gasification are compiled on a national and worldwide level. The research on the use of gasification slag in high-value applications such as residual carbon utilization, ecological restoration, and construction materials is summarized in the paper's conclusion. Lastly, it suggests the broad application of gasification slag. A comprehensive and acceptable utilization plan must be meticulously developed in order to attain high-value utilization and large-scale consumption, which will reduce businesses' environmental problems and increase their financial gains.Technologies with simple operating principles, high degree of flexibility, and economic benefits.

Keywords: Coal gasification slag, Morphological characteristics, Dehydration, Separation, Comprehensive utilization

1.Introduction

Given its rich coal content, low oil content, and low natural gas content, coal will continue to hold a major place in China's energy structure for the foreseeable future. Drawing from the significant reliance on imported oil (70%) and natural gas (42.8%) [1-4], as well as the China has aggressively developed coal gasification as the key technology, placing a major focus on the efficient and clean use of coal, coal-to-gas, and coal-to-liquid industries [5]. Coal gasification is the process of converting coal or solid fuels like coke or semi-coke into gaseous products and a small amount of slags by reacting with a gasification agent at high temperatures and atmospheric pressures or high temperatures and pressures [6]. Entrained flow gasifiers are the cleanest and most effective type of coal gasification bed due to their greater adaptability to various coal types, high carbon conversion rates, effective gas (CO, H2) content, and cold gas efficiency

Bringing a New Revolution in Human Resource Management (HRM) through AI

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Abstract

In the recent times of globalization and with the new trends and development in Information Technology (IT), every organization wants to keep them updated so that they can keep the competitive advantage continuously on the global level. One of the key departments in every organization is the Human Resource (HR) department, which involves the crucial practice of sourcing, recruitment, selection, hiring, training and development of employees, and managing the employee relations within the organization. Among these activities, the major job of HR is to recruit an effective and efficient employee who will be accomplishing the job objectives, so that organization can retain such employees for the long term and who can play an important role in the development of the organization.

Introduction

The traditional ways of recruiting employees are very time-consuming and need lots of paperwork to be done. But due to the development in technology and good Internet speed organizations are now slowly moving towards online recruitment. Different organizations are using different technologies for recruiting process, as a result, they can reduce the paperwork and workload of HR. In any recruiting process, one of the important tasks that need to be carried out is data analysis, which plays a very decisive role in making recruitment decisions. One such tool that can be used to make the data analysis and helps HR and the recruiters to make a good decision is to use "Artificial Intelligence (AI)". Though Artificial Intelligence was introduced by John McCarthy in the year 1956, it has gained its importance in the current generation. In a very simple language, Artificial Intelligence can be termed as an intelligent machine that is developed by humans and which behaves like humans. The main objective of the paper is to (a) introduce Artificial Intelligence in HRM, so that through its intelligent methods it can help HR in making good intelligent decisions during the recruitment process, (b) to bring out the reasons for choosing Artificial Intelligence in HR and (c) the challenges that the HR is facing with the introduction of Artificial Intelligence in the recruitment process. The methodology used for this research is the literature review of various conceptual papers, peer-reviewed journals, and articles.

Time Value of Money

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Abstract

The age-old golden business maxim, "use money always quickly and as much as possible to make money," has been used throughout the 20th and 21st centuries. As a result, financial management now plays a bigger role and is more significant than the forms themselves. Many businesses have failed despite having worthwhile goods and services because of poor or ineffective financial management; the most recent example is Lehman Brothers. The primary instrument of financial management appears to be the essential notion of the "time value of money," which is crucial for making investment and financial decisions. This essay makes an effort to review this fundamental idea and comes to some intriguing findings.

Introduction

The age-old golden business maxim, "use money always quickly and as much as possible to make money," has been used throughout the 20th and 21st centuries. As a result, financial management now plays a bigger role and is more significant than the forms themselves. Many businesses have failed despite having worthwhile goods and services because of poor or ineffective financial management; the most recent example is Lehman Brothers. The primary instrument of financial management appears to be the essential notion of the "time value of money," which is crucial for making investment and financial decisions. This essay makes an effort to review this fundamental idea and comes to some intriguing findings.

The worth of money factoring in a specific amount of interest generated over a specific period of time is known as the time value of money. For instance, $100 of today's money held for a year at a 5% interest rate will provide a value of $105, after a year. Therefore, to the receiver who anticipates a 5 percent interest, 100 dollars paid now or 105 dollars received exactly one year from now have the same worth; in other words, using the language of time value of money, 100 dollars invested for one year at a 5 percent interest has a future value of 105 dollars.

Tensile characteristics and reinforcing effects of nano-Al2O3-reinforced 6061Al/12 weight percent B4C composites

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Abstract

Aluminum-based matrix One significant material for thermal neutron shielding is boron carbide composites. Using hot isostatic pressing in the semi-solid temperature range, a novel composite reinforced with Nano-Al2O3 particles was created in order to create a 12 weight percent B4C/6061Al composite with improved mechanical properties using the powder metallurgy process. In this study, the tensile characteristics and strengthening effects of the composite were examined. A material testing machine was used to evaluate the composites' tensile stress-strain curve, and transmission electron microscopes (TEM) and scanning electron microscopy (SEM) were used to examine the microstructure and tensile fracture morphology of the materials. The addition of Nano-Al2O3 significantly increased the composite's tensile strength, although it clearly reduced its elongation, according to the data. The composite's micro -structure and fracture morphology were significantly impacted by nano-Al2O3 particles, which resulted in the more pronounced brittle fracture characteristics. The mechanisms underlying the strengthening of the 6061Al/B4C composite reinforced by nano-Al2O3 particles have been examined, and the primary finding is that grain boundary strengthening is crucial.

Keywords: Al/B4C composite Nano-Al2O3 Properties Strengthening mechanism

Introduction

High melting point, super-hardness, exceptional mechanical qualities, low specific weight, and excellent resistance to chemicals are some of the characteristics of boron carbide (B4C) [1,2]. Because of the material's brittleness, B4C's usage in the structural material field was severely restricted [3]. One of the primary uses is the production of B4C as partial reinforcement in metal products [4]. Aluminum matrix boron carbide composites (Al/B4C) are a common application [5,6]. Al/B4C composites are widely utilized in the aircraft, cycling, and electronic communication industries, among other fields, because of their low density, high strength, high specific stiffness, outstanding damping capacity, and great thermal conductivity [7]. Al/B4C composites have also been considered as a thermal neutron shielding material for high-density storage of spent nuclear fuel because they contain the isotope of 10B [8]. and which a number of corporations, including Boral, Holtec, and Alcan, have successfully marketed [9-11]. The primary application of thermal

Fluidized bed pyrolysis is a chemical method for recycling plastic.

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A B S T R A C T

The chemical recycling of many kinds of mixed, dirty, or filled plastic waste using fluidized beds. One advantage of using a fluidized bed reactor is that it has a high heat transmission. Less negative reactions occur, and the cracking process happens quickly. Olefins and oil are produced by pyrolyzing polyolefin. If the fluidizing gas is present and the pyrolysis gas is cycled, aromatics are produced. Up to 98% of the methylmethacrylate and 77% of the styrene can be extracted from polystyrene by pyrolyzing poly(methylmethacrylate). The hydrolysis and pyrolysis of polyester resulted in the production of terephthalic acid and very little soot. The pyrolysis of plastics in a fluidized bed can recycle large amounts of plastic waste on a costly scale.

Keywords: Chemical recycling Pyrolysis, Fluidized bed Polyolefin Plastics Monomer Recovery

1. Introduction

In recent times, there has been a lot of focus on gathering and recycling plastic waste as a way to save resources and the environment [1, 2]. Plastics use has increased dramatically more globally during the past 30 years than that of other materials, going from 100 million tons in 1989 to 369 million tons in 2019 [3]. After being utilized for packaging or short-lived items, about half of the plastics manufactured are wasted. The most environmentally responsible method would be to clean and separate the garbage into different types of pure plastic and then reuse these as raw materials to produce new plastic objects. Since many of the collected plastic fragments are contaminated with metals, paper, other polymers, and/or additives, the entire amount of plastic cannot be recycled mechanically. Currently, only 30% of plastic waste in EU nations gets recycled, with the remaining 70% being burned or disposed of in landfills [3]. Since almost all plastics are made from natural gas and crude oil, low energy recovery methods like landfilling and incineration are not long-term solutions. In order to create profitable products, chemical recycling can be a good substitute for mixed and contaminated plastics [4]. Even anything made from mechanically recycled plastics will eventually end up in the trash. There are only a certain amount of recycling procedures available since the type of polyolefin used in the extrusion process causes chain scission both with and without cross-linking, which lowers the finished product's mechanical qualities [5].There was initial interest in the feedstock recycling of polymers to recover oil and gas from this hydrocarbon source following the sharp increase in the price of crude oil in 1975. Preventing plastic products from being dumped in landfills, where they disintegrate very slowly, was another objective [6]. The thermal cracking of polymers is now explained by a greater number of mechanisms [7–10]. The primary issues facing the plastics pyrolysis sector are its low heat

Artificial Intelligence in the Workplace

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Abstract

The augmentation of human capability with artificial intelligence is integral to the advancement of next generation information systems yet we have limited understanding of how organisations can translate the potential of AI into creating business value. We conducted a pilot study of direct users of AI enabled technologies to investigate the challenges and opportunities of successful implementations of human-machine systems. Our study found that organisations have realized positive benefits from AI projects through high levels of communication, stakeholder consultation, problem management, ethics, and transparency.

Introduction

The augmentation of human capability with artificial intelligence is integral to the advancement of next generation information systems that drive performance improvement and innovation (Duan et al. 2019; Dwivedi et al. 2021; Berente et al. 2021). Yet we have limited understanding of how organizations can translate AI potential into creating business value through human-machine systems. Recent studies suggest that organizations are falling short in realizing business value from AI (Shollo and Müller 2022; Pamplona et al. 2019) and at best it was found to have shown mixed results (Langer and Landers 2021; Cubric 2020). To delve deeper into this phenomenon we conducted a literature review (Raftopoulos and Hamari 2023) and reviewed several studies to understand the factors that may influence performance extraction from AI technology. We found that there are four broad categories of interdependent variables at play: (1) Human factors, such as AI identity threat (Mirbabaie et al. 2022), personality types and trust
(Schepman and Rodway 2022) and agency (Newman et al. 2019), (2) Analog and digital machines have long been utilized by workspace designers to estimate labor outputs and, in certain cases, to replace labor through automation. This is currently the case with the incorporation of artificial intelligence (AI) tools and apps. To what extent are technologies expected to exhibit "intelligence"? How does management use machine-acquired personal data to infer the appropriate levels of intelligence? Data has been collected from the actions of employees and job hopefuls over time; this includes tracking precise social media use, as well as physical movements and emotions.

Fourth Industrial Revolution with AI

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Abstract
The fourth industrial revolution known as Industry 4.0 is said to increase the opportunities and industry potential with the use of digitisation aids. The digitisation of the construction industry is becoming very important as processes, quality and efficiency are being focused on a lot more. Within the construction industry, knowledge management (KM) is a key part of learning from past mistakes on previous projects. As part of Industry 4.0, Artificial Intelligence (AI) is one of the technologies that could provide a potential to the construction industry through gathering knowledge from previous projects to determine future project outcomes. Therefore, this research focusses on AI and its abilities to improve KM for the construction industry in the UK. Qualitative research approach was adopted to collect and analyse the data.

Introduction

This research focusses on AI and its abilities to improve KM for the construction industry in the UK. Qualitative research approach was adopted to collect and analyse the data. A total of 10 semi-structured interviews were conducted with managers within the construction industry. Results show that organisation have already implemented some sort of AI systems within projects and organisations in order to allow for better KM. Combining AI systems into Common Data Environments can help employees in finding documents easier with a unique ID or referenced words. It is concluded that AI systems can be built and used in order to assist with the KM processes that businesses have already implemented. It is recommended that there is a need for developing a business model canvas of implementing AI to benefit from KM within organizations in order to identify the difference between the business processes without AI for KM and with AI being used to assist KM. The first Industrial Revolution was driven by steam; the second was fueled by electricity; the third was fueled by early automation and machinery; and the Fourth is being shaped by cyberphysical systems, or intelligent computers. Industry 4.0 was essentially nonexistent as a Google search term before to 2014, but by 2019, 68 percent of participants in a global McKinsey poll considered it to be a key strategic goal. According to 70% of respondents, their organizations were already testing or implementing new technologies. In the Fourth Industrial Revolution, businesses need to make sure that their employees have the skills they need by retraining and upskilling existing employees and, if needed, hiring new staff. When the skills required for their jobs change, employees who are upskilled can acquire new abilities to support them in their existing roles. The true difficulty lies

Artificial Intelligence application in medicine

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ABSTRACT-

Artificial intelligence has found its use in various fields during the course of its development, especially in recent years with the enormous increase in available data. Its main task is to assist making better, faster and more reliable decisions. Artificial intelligence and machine learning are increasingly finding their application in medicine. This is especially true for medical fields that utilize various types of biomedical images and where diagnostic procedures rely on collecting and processing a large number of digital images. The application of machine learning in processing of medical images helps with consistency and boosts accuracy in reporting. This paper describes the use of machine learning algorithms to process chest X-ray images in order to support the decision-making process in determining the correct diagnosis. Specifically, the research is focused on the use of deep learning algorithm based on convolutional neural network in order to build a processing model. This model has the task to help with a classification problem that is detecting whether a chest X-ray shows changes consistent with pneumonia or not, and classifying the X-ray images in two groups depending on the detection results.

INTRODUCTION-

Artificial intelligence and machine learning are increasingly finding their application in medicine. This is especially true for medical fields that utilize various types of biomedical images and where diagnostic procedures rely on collecting and processing a large number of digital images. Artificial intelligence was recognized as a academic discipline as early as in 1950 s but it was not widely explored by scientific community due to its limited practical feasibility for a long time ago.AI become a focal point of research and business discussion. AI went through different phases of development often regarded as “Seasons of AI”.The concept of AI started when IBM developed their chess playing programme.

Al-4.5%Cu/10TiC Composite: Manufacturing and Mechanical Property Characterizations via in-situ Method

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ABSTRACT

It is commonly known that strengthening the mechanical properties of an aluminum matrix can be achieved by adding reinforcement such as TiC, SiC, Al2O3, TiO2, TiN, etc. The in-situ technique is strongly recommended over the ex-situ technique for reinforcing the aluminum matrix with a ceramic phase, such as titanium carbide (TiC). The current study used an in-situ technique to strengthen TiC utilizing Al-Cu alloy, a series of 2014 aluminum alloy, as the matrix material. In comparison to Al-4.5%Cu alloy, the Metal Matrix Composite (MMC) material Al-4.5%Cu/10%TiC demonstrated greater yield strength, ultimate strength, and hardness. . Vickers hardness increased by around 35%, while yield and ultimate tensile strengths improved by approximately 15% and 24%, respectively. The greater hardness results showed that the TiC particles had a role in raising the matrix's hardness. The tensile specimen of the composite material had a fractured surface that revealed the existence of a dimpled surface, suggesting a ductile form of fracture. Reaction products of different morphologies and sizes in the metal matrix, such as Al3Ti, Al2Cu, and Al3C4, were discovered during the composite's manufacture.

Keywords: *In-situ*; Metal Matrix Composites; TiC reinforcement; Mechanical Characterization

INTRODUCTION

Researchers have focused on producing materials that are both strong and light during the last few decades. Metal matrix composites based on aluminum are cutting edge materials with exceptional qualities that are being actively pursued for use in engineering applications. Al-based composite materials have become more important recently in the automotive, aerospace, and structural industries because of their improved mechanical qualities and strong temperature stability. High specific modulus, stiffness, strength, hardness, ductility, corrosion resistance, low heat expansion coefficient, and other qualities are required for advanced materials [1]. Combining the advantageous qualities of ceramics (high modulus and stiffness) and metal (high strength and ductility) is the goal of the creation of metal matrix composite materials. Achieving the homogeneous distribution of reinforcement within the matrix is crucial for achieving the best mechanical characteristics. While monofilaments, whiskers, fibers, or particle kinds are frequently

Fuel Sensitivity of Performance in Biomass Cookstoves

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ABSTRACT:

This study compares a pyrolysis biomass cookstove with distinct combustion and pyrolysis chambers (a two-chamber stove) to a commonly used char-producing cookstove design (top-lit updraft, TLUD). The effects of three distinct pyrolysis fuel types (hardwood, maize stover, or switchgrass pellets) on CO, NO, CO2, and particle emissions are measured, along with the time dependency of the particulate size distribution. Water boiling tests are conducted in a hood with pine wood serving as the fuel for the combustion of the two-chamber stove. Component compositions, char yields, and thermal and modified combustion efficiency are all reported on. The two-chamber stove is a great substitute for challenging waste biomass fuels since it is significantly less sensitive to fuel selection than the TLUD. The NO emission factors are positively associated with the nitrogen content of biomass pellets, whereas the particle emission factor (measured exclusively for the two-chamber stove) follows an order of hardwood < switchgrass ≤ corn stover (i.e., woody biomass < herbaceous biomass). Less than 0.25 μm makes up 70–80% of the particles by mass. This size range consistently constitutes the majority fraction during the water boiling test.

Keywords Biochar; Biomass pyrolysis; Biomass coostove; Particulates; Size distribution; Fuel

sensitivity

1.Introduction

For the vast majority of recorded tests describing stoves, woody biomass is the fuel of choice for most designers of improved cookstoves. Nonetheless, other waste biomass, such as dung, and agricultural leftovers, such as herbaceous biomass like maize cobs, straws, and husks, already significantly contribute to domestic biomass combustion and may do so in the future [10–16]. In rural parts of developing countries, an attempt has been made to produce biomass cookstoves that are efficient and emit few emissions for cooking and home heating [1–9]. Prasad et al. [17] contended that consideration of fuel attributes is necessary while designing a dependable stove due to the substantial influence that fuel selection has on stove performance. The primary objective of this study is to quantify the impact of fuel selection on the efficiency of a two-chamber stove that can easily be utilized with a range of pyrolysis fuels and produces charcoal. The two-chamber stove consists of an annular pyrolysis chamber surrounding the center combustion chamber, which is fed by wood. After the volatiles are released from the pyrolysis chamber, they are burned in the combustion chamber. Data from a second charcoal-producing stove, the more extensively studied

Study of the effects of residence time on the componential evolution of biomass pyrolysis vapors during indirect heat exchange by combining inversion of the bio-oil composition with function fitting

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A B S T R A C T

An inventive and effective experimental method was developed to adjust the sweeping gas flow rate during condensation in order to characterize the evolution curves and heated maps of the vapors generated by biomass pyrolysis. The composition % of the pyrolysis vapors was reversed based on the quantification of the segmental bio-oil collected by the specific condenser with two flumes. The mathematical link between location and vapor concentration was fitted The condensable proportion of water decreased from 85% to 60% in a water bath at 340 K when the N2 flow rate increased from 100 mL/min to 500 mL/min. On the other hand, the 500 mL/min N2 flow rate accelerated the condensing field disruption and improved the recovery of constituents that could condense more forcibly than water. The condensable fraction of guaiacol and its derivatives decreased to 40% at 300 mL/min and increased to 55% at 500 mL/min. The relative evolution of high- and low-proportion components in pyrolysis vapors in the condensing field was discussed, in addition to the unique history of components exhibiting azeotrope phenomena or particular solubility. using the Slogistic function. For the first time, the adjustment mechanism of constant non-condensable components on the evolution of condensable components was elucidated in the process of selectively condensing biomass pyrolysis vapors. This would improve our comprehension of the complex phase transition process significantly.

Keywords: Biomass pyrolysis Selective condensation Vapor evolution Non-condensable gasses Function fitting

1. INTRODUCTION:

Condensation of pyrolysis vapors was one of the primary processes for generating bio-oil from biomass pyrolysis and liquefaction [1]. As a more cost-effective and efficient method of improving the quality of bio-oil, condensation adjustment was found to be superior to feedstock optimization and pyrolysis methodology. This made it possible to employ biomass pyrolysis and liquefaction platforms for commercial and pilot-scale applications right away [2]. Within the condenser's restricted capacity, the different components in the vapors from biomass pyrolysis demonstrated varying recovery effects due to differences in their condensing capacities [3]. In the competitive relationship between these components that was discovered during the liquefaction of pyrolysis vapors, strong condensing capacities were chosen to condense [4]. Through the configuration of a