NATIONAL CONFERENCE

ON

RECENT DEVLOPMENT IN ENGINEERING & APPLIED SCIENCE

(NCRDEAS-2021)

24-26JUNE, 2021

Organized by:

Department of Computer Science & Engineering

Department of Electronics & Telecommunication Engineering

Department of Electrical Engineering

Raajdhani Engineering College

Near Mancheswar Railway Station, Mancheswar Railway Colony, Bhubaneswar, Odisha 751017

Published by

International Journal of Computer Science and Management Studies (IJCSMS)

ISSN:-2231-5268

CONFERENCE PROCEEDING

NCRDEAS-2021

(24-26JUNE, 2021)

NATIONAL CONFERENCE

ON

RECENT DEVELOPMENT IN ENGINEERING & APPLIED SCIENCE-2021

Organized by

Department of Computer Science & Engineering

Department of Electronics & Telecommunication Engineering

Department of Electrical Engineering

Raajdhani Engineering College, Bhubaneswar, Odisha, India

MESSAGE BOARD

MESSAGE

SRI CA. B. RAMPRASAD RAO

Chairman

Raajdhani Engineering College, Bhubaneswar

I am delighted to know that Raajdhani Engineering College Bhubaneswar is organizing National Conference on 24th-26th June-2021 and publish a proceedings on “National Conference On Recent Development in Engineering & Applied Science”.

Participation of different personalities from the field of engineering, science and industries will definitely bring awareness among the participants and promote this to help the development of society and nation ultimately.

I hope the outcome from such type of seminar will benefit every stake holders and give our institution a new dimension.

I wish the program all success.

SRI CA. B. RAMPRASAD RAO

Chairman

MESSAGE

DR. MANOJ KUMAR PALO

Vice-Chairman

Raajdhani Engineering College, Bhubaneswar

It gives me immense pleasure to know that Raajdhani Engineering College Bhubaneswar is organizing National Conference 24th-26th June-2021 and publish a proceedings on “National Conference On Recent Development in Engineering & Applied Science”.

Dignitaries present in the forum will focus on role and responsibility of

Professional Student in a wider way and inspire the participants to work for the society and nation. I hope this national seminar will disseminate and share elaborate knowledge and experiences in creating the awareness among the professionals for development of the nation.

I wish the national seminar all success.

Manoj Kum Palo

DR. MANOJ KUMAR PALO

Vice Chairman

MESSAGE

PROF. (DR.) BIMAL SARANGI

Principal

Raajdhani Engineering College, Bhubaneswar

I am glad to know that Raajdhani Engineering College Bhubaneswar is organizing National Conference on 24th-26th June-2021 and publish a proceedings on "National Conference On Recent Development in Engineering & Applied Science".

This forum will discuss extensively about the role and responsibility of the professionals through sharing the knowledge and experiences from the experts. I hope this seminar will bring a positive impact on participants to understand their responsibility and participation as individual for the development of the nation.

I thank the organizers and wish the program a grand success.

PROF. (DR.) BIMAL SARANGI

PRINCIPAL

NCRDEAS-2021

Paper ID: NCRDEAS-01

PRESENTED PAPERS

A study on Ensemble and Machine Learning Algorithm to Predict Forest Fires

Dr. Prasant Kumar Pani1, Dr. Umasankar Das2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: pkpani@rec.ac.in1, umasankardas@rec.ac.in2

Abstract:

In recent years, forest fires have emerged as one of the most comirOn iiatuf8l disasters. Forest fires have long-lasting effects on the environment because they cause deforestation and contribute to global warming, which is also one of their main causes. The collection of satellite imagcs of the forest is uscd to combat forest fires, and the authorities arc notified in thc event of an emergency to mitigatc its effects. The fires would havc already caused a lot of damage by the time the authorities learned ahout it. Data associated with forests can be used tO predict the likelihood of forest fires through the application of data ruining and machine learning methods. This paper utilixes the dataset present in the UCI AI store which comprises of actual elements and climatic statcs of the Moiitcsinhopark arrangcd in Portugal. With or without Principal Component Analysis (PCA), various ‹algorithms such as logistic regrcssion, Support Vector Machine, Random forest, K-Nearest Neighbors, and Bagging and Boosting predictors are utilized.

Keywords: Supervised Learning Algorithms, Forest Fires, Principal Component Analysis, Ensemble Learning Algorithms

Introduction:

Timbcrland fires (otherwise callcd fierce blazes) havc become onc of the most often happening calamitics as of late. These wildfircs are destroying vast tracts of forest land. Global warming, which refers tO an increase in the earth's average temperature, is one of the main causes of forest fires. Lightning strikes during thunderstorms and human error are the other causes. Every year a normal of 1.2 million sections of land of woods in the US get annihilated because of the rapidly spreading fires. Bctwccn 2016 and 201 S, tlicrc was a 125" o incrcasc in the number of forest tires in India. Dcforestation caused by forest fires can havc ‹i significant negativc impact on hum‹in society. The typical course of managing fierce blazes is where the satellite pictures of the woods fires are caught and the specialists are informed by its event and the actions are taken to stop it [I]. However, the above procedure wit I not take place until the

Paper ID: NCRDEAS-02

Texture-Based Automated Classification of Ransomware

Prof. Vanapalli Pavani1, Prof. Umesh Prasad Rath2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: vpavani@rec.ac.in1, urath@rec.ac.in2

Abstract:

The case with which user-friendly sofiwarc can store and manipulatc data with much less effort has increascd the reliance on digital data. lf no security measurcs have been taken to prevent unauthorized access, this digital data can become extremely difficult to maintain. It' security isn't implemented, the entire machine could be infected. If a malicious operation is carried out on the machine by an unauthorized user, data and the entire machine may easily become infected or be lost. By inserting malicious code into the bytc code of the sourcc tilc that is being transferred to the machine, this is possible. These malicious operations have becn broken down into various types of malware based on the damage they caused. Ransomware is one of many harmful types of malware that uses an encryption mechanism to prevent a user from accessing his or her own computer's data. The decryption key is not provided until the required ransom is paid. The method that is proposcd in this article, in contrast to other methods that have bccn discusscd in the litcrature, looks at irregularitics in the texture of the image. The proposed method makcs use of a local binary pattern that is generated from the file that is going to be analyzed. This pattern can be used to immediately detect the file when it is transferred to the victim's computer before it is executed.

Keywords: computerized information, twofold example, rnalwares

Introduction:

Programs known as malware arc undesirable and harmful thrcats that arc dcsigncd to compromise a computer's security. Because malware is capable of causing cxcessive loss and damage to computer security, malware detection has become an essential concern iii the cybersecurity community. An enormous amount of malicious software is intentionally created each day. Malware is growing at a rate of 36^{O} per year, according to a 2019 Symantec repos [1]. The total number of malware samples is cstimatcd to be ovcr 430 million. Thc iast dcvelopment of malware causes a broad danger in our day to day routine. Ransomware encrypts or locks a user's tiles on their device and demands payment to restore them, which can result in significant productivity losses [2]. Major corporations frequently suff'er significant financial losses as a result of data breaches caused by malware [3]. Tro|ans and spyware are utilized in digital survcillancc bringing about harm of international and worldwide relations [4]. Malwarc has emerged as a major concern for smartphone and computer network users [5, 6].

Deep learning, a method based on auificial neural networks (ANN), can be successfully utilized to combat these thrcats [7,S]. With its inultilaycr architccture, dccp learning is cxccllcnt at learning thc characteristics of labeled and unlabeled data. However, cvery time we use a dcep learning model, we must train it on a large data set, which consumes a lot of time and computing power. We can use pre-trained deep learning network architectures and feature extraction to build the classification model to get around this learning obstacle [9].

Paper ID: NCRDEAS-03

Privacy and security for loT: Problems and Solutions Summary

Prof. Umakanta Dash1, Prof.Swotismita Das2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: udash@rec.ac.in1, sdas@rec.ac.in2

Abstract:

The Internet of Things (IoT) presents a number of significant obstacles, two of which are privacy and security. IoT races a number of obstaclcs, including incorrcct device updatcs, a lack of effectivc and robust security protocols, user ignorancc, and well-known active device monitoring. We are looking at the history of IoT systems and security measures and determining (a) various privacy and security issues, (b) methods used to secure the components of IoT-based environments and systems, (c) existing security solutiOns, and (d) thc best privacy modcls that arc ncccssary and appropriate for various layers of IoT-driven applications. We proposed a brand-new layercd loT model in this work: gencric and stretched with layers identification and privacy and security components. The clouHedge- supported IoT system that was proposed is being implemented and evaluated. The loT nodes that are produced as Virtual Machines thrOugh Amazon Web Ser› ices (AWS) cOnstitutC the lowcr layer. The niiddlc layer, or cdgc, was implcincntcd using a hardware kit for the Raspberry Pi 4 and AWS's Green grass Edge Environment. The cloud-enabled loT environment in AWS was utilized for the implementation *OF* the top layer. The security conventions and basic administration meetings were between every one of these layers to guarantee the protection of the clients' data.

Keywords: Cloud, edge, Internet of Things, security measures. GlOud services; advanced Computing ; privacy.

Introduction:

The concept of wired or wirelessly connected objects and devices over the Internet is referred to as the Intcrnct of Things (IoT). As these technologies arc utilized for a varicty of purposcs, including communication, transportation, education, and businicss development, their popularity has increased rapidly. The idea of hyperconnectivity was introduced by the lnternet of Things, which means that individuals and businesses can easily communicate with one another from faraway locations. In order to promote the Radio Frequency Idcntification (RFID) concept, which includcs cinbcddcd scnsors and actuators, Kcvin Ashton invented the tcrm “loT” in 1999. Nevertheless, the original concept was first presented in the 1960s. The concept was known as pervasive computing or embedded Internet at the time. Ashton presented the lnternet of Things idea to boost supply chain operations. Nonetheless, different functionalities of IoThas assisted it with acquiring sOlid famc in the late spring of 2010. A fivc-year plan was introduccd by the Chincsc govcmmcnt to give loT strategic priority. Thcre are approxim‹itc1y 26.66 billion loT devices in usc today [I]. With the iiitrOduction of smart energy meters, wearable devices, and hone automation in 20 l l, the mass explosion began. Organizations have benefited from the rapid growth of IoT and improved market research and business strategies in various ways. In a similar vein, automatcd services introduced by tlic Intcrnct of Things havc improvcd pcoplc's lives.

Paper ID: NCRDEAS-04

IoT-based clustering protocols for agricultural precision

Dr. Prasant Kumar Pani1, Dr. Umasankar Das2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: pkpani@rec.ac.in1, umasankardas@rec.ac.in2

Abstract:

The lntcrnet of Things (loT) has made it possible for new applications of Wireless Sensor Network (WSN) technologies tO be developed. IoT can play a significant role in enhancing production, quality, and output yield in agricultural monitoring. Many agricultural activities will see significant improvements as a result *OF* the use of WSN and data mining methods. The managcnicnt of the amount of water in planted ticlds is one such activity. Likewise, during ongoing years, WSN has turned into a seriously developing field in accuracy cultivating. The use of energy and increasing the life of the nodes are the most significant issues in the development of WSN. The clustering protocols based on soft computing that are utilized in the agricultural sector to extend the lifespan of WSNs are the subject of a systematic analysis in this paper. DitTcrcnt soft computing methods arc used ior classification: gcnctic algorithm, fuzzy logic, swarm intclligence, and neural networks The survcy will then present a comp‹irison of soft computing techniques, focusing on their objectives and advantages and disadvantages. The findings of this survey enable the researchers to select the appropriate soft computing method for WSN-based precision agriculture clustering protocols.

Keywords: Swarm intclligcncc, genetic algorithms, the Internet of Things (IoT), the Wirclcss Sensor Network (WSN), precision fanning, neural networks, and soft computing.

Introduction:

A region's economic dcvclopmcnt relics heavily on agriculture. Agriculturc is an important job [1]. Agriculture provides a source of income for ne‹irly 70% of Indian families {2]. As a result, agriculture needs to be protected and improved. Smart terming was introduced in light of agriculture's significance. The production of various crops is monitored by agriculture and information technologies [3]. Due to the fact that the most impooant component of tanners' stratcgics is out of datc and docs not yield an acccptablc lcvcl, scvcral issues in agriculture rcmain unsolvcd [4]. Stickiness, air temperature, and farmland fiindamcntally influcnce plant improvement and the horticulture business, which are significant for maintainability [5]. Sustainable agriculture and intelligent farming, which include crop monitoring in a real environment, smac greenhouses, disease detection in crops, and smart city management, have garncrcd a grcat deal of interest from academia and industry alike. The first steps toward fundamental analysis and intclligent farming applications are other obstacles, such as gathering and recording data [S]. With the rapid development of mobile and wireless networking technology, data has spread more widely. Wireless sensor networks (WSNs) are a result of the IoT (Internet of Things) system's battery-operated sensor nodes and low power consumption [9].

Paper ID: NCRDEAS-05

Structural Performance of Building Shapes Based on Genetic algorithm

Prof. Suren Kumar Sahu1, Prof. Subrat Bhol 2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: sksahu@rec.ac.in1, sbhol@rec.ac.in2

Abstract:

The design of buildings is an integrated process that includes evaluating structural performance and construction cost in addition to investigating a variety of building shape alteniatives. An integrated framework for investigating solid-type building shapes based on their preliminary structural performance is the primary goal of this research. The proposed framework is based on an evolutionary approach that secks building shapes by employing an implicit redundant representation genetic algorithm (IRRGA). In this approach, objective functions are derived from the synthesis of visual forms or intuitive reasoning in a manner that is analogous to the decision-making process employed by architects. The following pans provide support for the framework: 1) transformation from a building shape to a structural model; 2) evaluation of performance through structural analysis; and 3) total volumc optimization as a cost t'eedback to help choose building shapes. At an early stage of the design process, the framework can assist the architect in determining the acceptability of building shapes.

Keywords: Design procedure, construction cost, building shape, and genetic algorithm

Introduction: In architecmral CAD packages gcncrativc dcsign is increasingly being included. These gcnerative dcsign tools allow the CAD program to manage the rclationships between the rarameters of the design and its data, while a normal CAD merely provides drawing tools and stores design data. Using generative design in a design process therefore not only creates documentation of the design but also a model capable of generating variants on the design. These variants can be crcatcd by changing sonic of the paramctcrs. The program then updates the rest of the data according to these parameters using the model created by using the generative design prOcess (Krish, 201 l). This ability of the model can be used to optimize certain aspects of the design. The advantage of parametric design alongside optimization algorithms is that the process can evaluate a far greater number of solutions autonomously than a dcsigncr could (Silcrytc, D'Aquilio, Di Stcfano, Yang, &Turrin, 2016). This rapid search for fcasible solutions is especially impooant in the early stages of design when investment into each solution should be kept lOW (Liu, Chakrabarti, & Bligh, 2003) and the impact of choices is high (Cross, 1993; Turrin, 20 14). However, adoption of optimization algorithms in the conceptual design has been slow (Rolvink, Coenders, & Mueller, 20 14).Thc implementation of such an optimization rcquircs a frcc for in dcscription of tlic dcsign concept to be coupled to both a pcrformance simulation and an optimization algorithm.

Paper ID: NCRDEAS-06

Multiple regression analysis and artificial neural networks based Trafic Volume Forecasting

Dr. Prasant Kumar Pani1, Dr. Umasankar Das2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: pkpani@rec.ac.in1, umasankardas@rec.ac.in2

Abstract:

The purpose of this stutlv is to de elop a inotlel for tr‹iffic xolume forecasting of tlic i oad nct ork iB Anairora› a Region. The dcsc ‘ir on o1’ the current ti at tic v‹ Imacs is cnalalcd using PTV Visuni software, which is used us an in put data gainetl through manual and automatic counting of ehicles and inier› ie ing traffic participants. In order to de› elop the Forec‹istiflg nodal. there has bccn the necessity to cstalalisli a data set rclving on timc scrics u hich enables interface beta ecn demographic, socio-economic › ariables ‹intl ti affic oluincs. At the beginning iaiodels ha› c bccn dc› clopcd b; MLR and ANN methods using orip•inal data on variahlcs. In order to eliminate high correlation between -ai'iables appeai'ed by intiividual models, PCA method, which transforms vat tables to principal components (l•C s), has been emploed. I hese PCs are used as input in oi‘dcr to dev clop combincd models PCA MLR and PCA-RBF in u hich the minimization of errors in trattic oluincs forecasting is significantly confirinetl. The obtaiiicd FCSultS 8fE COirparcd to pcrforniancc indicators such R', MAK, MSK and MAPE and timc outcome of this iiiitlertak ing is that the model PCA-RBF proc ides minor errors in forecasting.

Keywords: Trattic Volume: Forecasting Mode1; Multiplc Regreession Analysis; Artificia1 Neural Network: Principal Loinponent Analysis.

Introduction:

There have been approximately 550 million automobiles worldwidc in recent years as owncrship has steadily increased. In any case, the conveying litsit of the street is conflicting with the dcvclopincnt of vchielc numbers, bringing about long haul clog and stagnation out and about, which not just diminishes traffic proficicncy and cxpands occupants' movement time yet additionally builds the gamble of car accident. It is essential to accurately predict the fiow of traffic in cach section and offer suggcstions for traffic divcrsion in order to ensure the smoothness of the road. In this paper, we characterize traffic stream as the quantity of vehicles taking a break in the street cut checked by the camera. In order to jointly predict the traffic *ROsv* of the target road section, the traffic flow data tor each adjacent road sectiOn ought to be combined, allowing for partial missing of the previous flow data in this paper.

Paper ID: NCRDEAS-07

Review on weather prediction using Machine Learning Technique

Prof. Subhransu Sekhar Tripathy1, Prof. Srinibas Swain2
1,2 Raajdhani Engineering College, Bhubaneswar, India
Email: sst@rec.ac.in1, sswain@rec.ac.in2

Abstract:

lB this papcr. we have evaluated the machine learning lechniques lo predici weather u'ith much accuracy. During this iesearch piocess we have used following parameters to predict weather: temperature. rainfall, evaporation, sunshine, wind speed, wind tlirection, cloud, humidity and size of' dataset. This research aims to compare the perfoniiaiice of some machine teaming algorithms for predicting weather using weather data. From ihc collcctcd weather data which contains some z cathcr attributes, which arc most rclcvani to w eather prediction this paper, various Machine Learning Techniques have explored which includes Naive Bayes Bernoulli, Logistic Regression, Naive Bayes Gaussian and KNN. The experimental results show that Naive Bayes Bernoulli algorithm has good lcvcl of accuracy than other algt rilhirs.

Keywords: Weather Forecast, Machine Learning Techniques: Naive Bayes Bernoulli, Logistic Regression, Naive Bayes Gaussian, KNN classification, Data pre-processing.

Introduction

Weather forecasting is now the most difticult and crucial method for predicting the weather in any location in today's information technology era [I]. Weather forecasts aid in outdoor programming, crop cultivation, and timc managcmcnt, among other human concerns. Scientists ciin now more accuratcly and acciiratcly predict the wc‹ither thanks to recent advances in science and technology. The scientists analyze more precise weather forecasts using more advanced technologies and methods. Number of strategies and methods are utilized by the researchers to figure climate; a potion of these strategies are more precise than others. There is colossal measure of climate information accessible which is wealthy in data and can be utilized for climate expectation. The process of gathering information about the weathcr—such as temperature, precipitatiOn, evadoration, sunshine, wind direction, cloud, humidity, and wind speed is known as forecasting. Weather data is used to predict climate parameters like temperature, wind speed, rainfall, and meteorological pollution using a › ariety of machine learning tcchniques [2]. Decision Trccs, Artificial Ncural Nctworks (ANN), Naive Bayes Networks, Suppor Vector Machines, fuzzy Logic, Rule-based Tcchniqucs, which include Memory-Based Reasoning Techniques and Genetic Algorithms, are among the most frequently utilized Machine Learning techniques for weather prediction.

Paper ID: NCRDEAS-08

Utilizing FIDA* Strategy in Routing Wireless Sensor Network

Dr. Prasant Kumar Pani1, Dr. Umasankar Das2
1,2 Raajdhani Engineering College, Bhubaneswar, India
Email: pkpani@rec.ac.in1, umasankardas@rec.ac.in2

Abstract:

The primary area of study in the ficld of wireless sensor nctwork (WSN) routing is the Intcrnct of Things (loT)-based, cost-effective routing. The fuzzy inference systcm makes use of thrce Quality ot' Service (QoS) parameters in our method: angle, energy, and distance. The probability that a node will become the cluster head is the system's output. The shortest path for data packets to travel from the supply node to the sink node was found using an iterative deepening A*(IDA*) search. The cluster hcad is clioscn using the fuzzy systcm, and the minimal cost path is chosen using the IDA* search algorithm. The proposed Cost-Efficient Routing in WSN Using Fuzzy IDA* (CERWFI) method was used to tind the best path thou the beginning node to the end node (sink). The study concludes that the optimal, admissible, and comprehensive IDA* algorithm can address space complexity found in Dijkstra's and A* algorithms.

Keywords-IoT; WSN; QoS; Fuzzy system; IDA* scarch; shortest routc path.

Introduction:

Sensing, processing, and communicating sensor nodes make up a wireless sensor network (WSN). The majority of the time, the nodes are fixed and only rarely require human intervention. It is a unique kind of ad hoc network that has very little mobility, if any [I]. We can use it to keep an eye on and analyzc any unknown environment. Commonly, WSNs arc information driven. Regardless of mentioning information intended for a hub, information are gathercd in view of specific credits, similar to temperature and dampness. To accurately reflect the physical characteristics in a given area, numerous sensors must be used [1]. The development of recent technology has made it possible to install thousands of programmable, multi-parameter-capable sensor nodcs within a network. At tlic location of interest, wirclcss scnsors can be set up without any prepar‹ition. Because it saves time and money during installation, this is a huge benefit. AdditiOnally, we may gain additional advantages by replacing a wired inacrosensor with smaller wireless sensors at the same cost. One more benefit of WSNs is that the disappointment of one sensor hub doesn't influence the entire organization, since there are neighboring hubs gathering a comparablc sort of information in the objcctivc locale 1].

Paper ID: NCRDEAS-09

IoT-based smart vehicle and anti-theft system

Dr. Prasant Kumar Pani1, Dr. Umasankar Das2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: pkpani@rec.ac.in1, umasankardas@rec.ac.in2

Abstract:

Theft of automobilcs can be detected by a new security system. This study intcnds to plan and execute a security framework that in view *OY* web of things innovation (IoT). The owner can control and communicate with the vchiclc thanks to the system. Sensors and a caincra connected to a Raspberry Pi are used in smart vehicles to implement systems for accident detection and anti-theft. The IoT system sends the vehicle's location to the owner's phone using GPS and GSM/GPRS modules. This vehicle security system aims to prevent theft and establish a connection between the vehicle and its owner. The security system will notify the owner with the vehicle's location whencver anyone other than the owner attempts to start the vehicle. In addition, the system will shut off the power and lock the vehicle. This design introduces a cost- effective, simple, and effective system.

Keywords: GPS, GSM, IoT, Raspberry Pi, anti-thett, accident detectiOn

Introduction

Primitive pcople would remain isolated from othcr groups and communities prior to the wheel's discovery. Theycould drive just inside strolling distance. The early human life was completely transformcd by the discovcry of the wheel. With timc, his social boundaries also grew. The primitivc man transformed into a mannered, civilized individual over time, and he also improved the wheel's design. Transportation has become an essential part of our lives thanks to technology.Dcspitc its numerous bcncfits and applications, we must address the major issuc that threatens human life.In terms of statistics, the Ministry of Statistics and Program Implementation repons that 155 million vehicles were registered in India in 201 2 and 1 14 million in 2009.

According to the Delhi Statistical Hand Book, the number ot registered motor vehicles increased trom 534,000 in 2014 to 577,000 in 201Ii, resulting in an increase in the number of accidcnts and, conscquently, fatalities.

Paper ID: NCRDEAS-10

Mobile Ad Hoc Network's Virtual Solution for Network Data Crowding

Prof. Shashi Bhushan Panda1, Prof. Saraju Prasad Khadanga2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: sbpandal@rec.ac.in1, spk@rec.ac.in2

Abstract:

There are numerous bodily characteristics in cellular environments, such as shadowing influence, transmission disturbance, and multipath diminishing, among others. Aside from this, the rcpctitivc niovemcnt or specially appointed hubs might cause strong changc or gcography alongside unpredictable organization among hubs. On account of these sort of attributes, it very well tray be confounded to straight away use TCP/IP to impromptu systems administration. Ad hoc networking typically involves the transmission of information between nodes. However, because of the activity of nodes and powerful topology changes, routing typically requires the assumption that thcrc is at least one complete cnd-to-cmd transmission route betwccn two nodes at some point. MANET routing data transfer with effective messaging control is the focus of this paper.

Keywords: disturbance in the transmission, shadowing, diminishing inultipaths, topology, TCP/IP, ad hoc network, routing, and MANET

Introduction

Lately, remote organizations have grown quick ly in supposing versatility. There are two types of mobile wireless networks based on whcthcr or not the mobile communication systcin has infrastructure. A network that includes infrastructure is the first type. Within the communication range, the mobile node uses the base station that is closest to it to carry out communication. In such an organization, a versatile hub is identical to a portable terminal. It lacks routing capabilities, and only mobile switches are in charge of routing and switching. Commonplace instances of this kind of organization arc cell rcmotc tramcworks, office remote LANs, etc.

A mobile network without infrastructure is the second type (Figure 1). It is an independent remote multi-jump organization. There is no fixed infrastrucnire or routers across the entire network. All of the nodes are mobile and have the ability to dynamically maintain any kind of contact with othcr nodes. Duc to the tcrininal's limited wireless coverage, two user tcrminals that are unable to communicate directly can forward packets with the assistance of othcr nodcs in this environment. Every hub can be supposed tO be a switch, and they should have the Option tO find and keep up with courses to different hubs.

Paper ID: NCRDEAS-11

Platforms, Applications, Research Concerns, and Challenges in Cloud Computing

Prof. Santosh Kumar Naik1, Dr. Umasankar Das2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: sknaik@rec.ac.in1, umasankardas@rec.ac.in2

Abstract

The development of parallel computing, distributed computing, grid computing, and virtualization technologies known as cloud computing is thc dcfining feature of a new cra. Distributed computing is an arising model of businccss rcgistering. In this paper, we investigate the idea of cloud design and contrasts distributed computing and lattice processing. We also talk about the features and tises of a few well-known cloud computing platforms. We hope to identify the difficulties and issues associated with cloud computing in this paper. From thc pcrspcctivc of cloud computing adoption, wc idcntificd a numbcr of obstacles and highlighted the cloud interoperability issue, which calls for significant additional research and development. However, users tace significant difficulties adjusting to cloud computing systems due to concerns about privacy and security. In this paper, we look into the privacy and security concerns of several cloud computing system providers.

Keywords: parallel computing, distributed computing, grid computing, virtualization technologies and cloud computing.

Conclusion:

According to Kogias, Xcvgenis, and P‹itrikakis (2016), cloud computing lets users get the computing services and resources they need without having *iO* buy their own infrastructure. Instead, they only pay for what they use. Models predict that cloud computing will be seen everywhere Or referred to as ubiquitous. This makes it convenient for everyone involved, who can rcqucst configurable computing rcsourccs via nctwork access as nccdcd. Networks, applications, data storage, servers, and various serviccs are cxamples of these computing resources. AGCOrding to Melt and Grance (2011) , the resources can he provided with very little interaction with service providers, requiring very little management effort. The term "cloud computing" refers to both the applicatiOn that is provided to an Organization as a scrvicc and the hardware and soitwarc that provide scrviccs (Armbrust ct al., 2010).

The potcntial benefits of cloud computing include the potential to reshape how lT hardware is purchased based on an organization's requirements and its potential to transform the IT industry. It cuts down on the amount of money needed to put innovative ideas into action, which would otherwise require a lot of money to set up the hardware envirOnmeiit for such ideas (Anubrust ct al., 2010). The idea of virtualization is the core of cloud computing. The technology of virtualization is not ncw; it was discovered in 1967,

Paper ID: NCRDEAS-12

A study on Application of Data Mining in Agriculture

Dr. Prasant Kumar Pani1, Prof. Sagram Keshari Sahoo2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: pkpani@rec.ac.in1, sksahoo@rec.ac.in2

Abstract:

A lot of data is used by agricultural organizations today. In the plethora of agricultural data, significant data must be processed and retrieved. Usage of data and correspondences innovation cmpowcrs robotization of removing liugc information with an end goal to get information and patterns, which empowers the end of manual crrands and simplcr information extraction straightfOrwardly trots electronic sources, move to get electronic arrangement ot' documentation which will empower creation cost decrease, better return and higher market cost. By aoalyxing data from various perspectives and discovering connections and relationships in sccniingly unrelated data, data mining enables agricultural businccsscs, in addition to information about crops, to predict trends regarding customer conditions or behavior. Agriculture-related raw data are abundant and varied. The development of an agricultural information system is made possible by the integration of their collection and storage in an organized wanner. In agriculture, there are a lot of oppoounities for data ruining to look for hidden pattcnis in tlicse data sets. Customcrs' situations in agricultural businccsscs can be asscssed using thcsc patterns.

Keywords: Information systems, agriculture, data mining, data proccssing, agriculture businesses.

Introduction:

Identifying the variety of customers who purchase the offered products or services and establishing a rclationship with them so that they rcmain a source of revenue for thc businccss in thc future is now an esscntial part of doing business. lndecd attracting ncw ciistomcrs is just as important as keeping valuable old ones [I—3]. Examining the characteristics of various groups of customers is one method for gaining a deeper understanding of them. Analyzing customer behavior and selecting the appropriate marketing strategy may determine a company's ability to survive in highly compctitivc markets whcrc custonicrs have numcrous options [4].

Paper ID: NCRDEAS-13

Businesses in the agricultural sector, information systems, data mining, and processing

Dr. Prasant Kumar Pani1, Dr. Umasankar Das2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: pkpani@rec.ac.in1, umasankardas@rec.ac.in2

Abstract:

A lot of data is used by agricultural organizations today. In the plethora of agricultural data, significant data must be processed and retrieved. Usage *OF* data and correspondences innovation cmpowcrs robotization of removing huge information with an end goal to get information and patterns, which empowers the end of manual errands and simpler information extraction straightfOrwardly from electronic sources, move to get electronic arrangement of documentation which will empower creation cost decrease, better return and higher market cost. By analyzing data from various perspectives and discovering connections and relationships in seemingly unrelated data, data mining enables agricultural businesses, in addition to infonration about crops, to predict trends regarding customer conditions or behavior. Agriculture-related raw data arc abundant and varicd. The devclopincnt of an agricultural information system is made possible by the integr‹ition of thcir collection and storage in an organized manner. In agriculture, there are a lot of opportunities for data ruining to look for hidden pattci'ns in thcsc data sets. Customers' situations in agricultural businesscs can be assessed using these patterns.

Keywords: Data irining, agriculture, data processing, information systems, agricultural enterprises

CONCLUSION:

In terms of farm output, India currently ranks second in the world. lndia's socioeconomic fabric is significantly shaped by agriculture, which is the dernographically broadest economic sector. Crop production in agriculture is a onc-of-a-kind business that is attcctcd by numerous climate and economic factors. Soil, climate, cultivation, irrigation, fertilizers, temperature, rainfall, harvesting, pesticide weeds, and other factors are sOnie of the factors on which agriculture is dependent. For the operation of industries-related businesses' supply chains, historical crop yield data is also crucial. These enterprises utilize horticultural itcnis as natural substancc, domesticated animals, food, crcaturc feed, synthetic, poultry, manure, pesticidcs, seed and paper. These businesscs can plan supply chain decisions like production scheduling with the assistance of an accurate estimate ot' crop production and risk. Based on estimates of crop production, industries like the seed, fertilizer, agrochemical, and agricultural machinery industries plan production and marketing activities. [l, 2]. There are 2 variables which are useful for the ranchers and the public authority in dccision making to be specific.

Paper ID: NCRDEAS-14

IoT Security Using a Random Forest Algorithm

Prof.Sagarika Das1, Prof. Rashmi Ranjan Tarai2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: sdas@rec.ac.in1, rrtarai@rec.ac.in2

Abstract:

New ch‹innels for the detection of such attacks have emcrged as a result of recent advancemcnts in programmable networks, panicularly the programrnability of data planes in switches and routers. This paper suggcsts using Random Forests, a machine lcarning tcchniquc, to quickly and reliably identify DoS attacks in a programmable switch, taking advantage of this newly discovered capability. Random forests employ a large number of procedurally generated classification trees, each of which independently classifies an input into one of a number of classes. After that, a network flow will be categorized by each decision tree as either a legal user flow or a potentially dangerous one, such as a componcnt of a Denial of Service (DoS) attack. Despite the tact that multiple classification trees are utilized to improve accuracy, random forests arc cxtrcmcly light due to the fact that only a small numbcr of straighttorward calculations arc
•= uired for each classification trec. Due to the simplicity of the operations performed in each tree, programmable switches are an excellent choice for employing this strategy because of their limitcd rcsourccs and nccd ior rapid processing to function at line rate.

Keywords: Denial of Service (DoS), IoT, Machine Learning, Support Vector Machine, KNN.

Introduction:

Due to the ease with which the IoT can integrate the physical world and computer communication networks, as well as applications (apps) like intrastructure management and environmental monitoring, future IoT systems must incorporate privacy and security measures. Security issues like malware, cavesdropping, spoofing, intrusions, distributcd denial-of-service (DDoS), and DoS attacks must be addressed by IoT systems, which combinc cloud computing, wireless sensor networks (WSNs), and radiofrequency identifications (RFIDs). For instance, wearable devices that collect and transmit user health data to a connected smartphOne must prevent the leakage of personal infonration. When dealing with large amounts ot' data, IoT devices typically lack the processing power, memory, radio bandwidth, and battery life required to complcte computationally demanding and latency-scnsitivc sceurity tasks.

Paper ID: NCRDEAS-15

A Review of Deep Learning-Based Methods for Predicting Molecular Property

Prof. Ranjan Kumar Samantaray1, Prof. Rajib Lochan Paramguru2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: rks@rec.ac.in1, rlp@rec.ac.in2

Abstract:

At the moment, deep learning is widely used in a variety of fields due to its precise performance. The current state of research on deep learning in molecular property prediction applications is thoroughly examined in this review from three perspectives: compares the advantages and disadvantages of supervised learning, semi-supervised learning, and unsupervised learning. The most cxtensii e rcscarch to date focuses on superviscd learning-based molecular property prediction. Nonetheless, the examination pattern has add anced toward semi-regulated learning and unaidcd learning.

Kevwords: Deep learning, moleciilar propeoy prediction.

Introduction:

During design and substance discovery, an important issue is rnoleciilar property prediction (MPP). lt helps speed up drug discovery, reduce costs associated with research and development, and improvc clicmical dcsign. As indicatcd by the different anticipatcd propcrtics, the sub-atoinic propcrty forecast issue can be partitioned into grouping errands (like poisonousness) ‹ind relapsc undertakings (like atOtTlization eiiergy). While explicit physical images are provided by traditional rnethods based on density functional theory, processing a large nurnber of molecules takes time. The prediction of cornpound prOperties using machine learning has received a lot of attention from rescarclicrs in rcecnt ycars, and onc of the niost common approachcs is quantitative structurc-activity relationships (QSAR). The fundamcntal premisc of QSAR is that ‹i moleculcü properties are determined by its structure; Specifically, a compound's molecular structure can be used to predict its biological activity. One more significant use of QSAR is virtual separating drug revelation, which dirninishes the quantity of applicant intensifies that should be tentatively tried, accordingly [essening improvcincnt cxpcnscs and accclcrating the mcdication disclosurc proccss.

Paper ID: NCRDEAS-16

A systematic approach on IoT-Based Health Monitoring System

Dr. Prasant Kumar Pani1, Dr. Umasankar Das2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: pkpani@rec.ac.in1, umasankardas@rec.ac.in2

Abstract:
He‹ilth is one of the most pressing issues facing humanity today. Lung failures, heart-related diseases, and cardiac illnesses are all on the rise. The health of elderly patients or hospital patients must be monitorcd, but practitioncrs and doctors must bc on constant watch in ordcr to do so. The Web of Things (loT) and the use of data innoi ation hugely affect how medical care is given. As pan of the IoT health monitoring system that is being proposed, a potable device with sensors that can detect a variety of physiological parameters, such as the patient's body temperature, blood pressure, electrical heartbeats as seen on an electrocardiogram (ECCi), blood oxygcn saturation, hc‹irt rate, body fall detection, traumatic brain injury, ‹ind activity monitoring, would be made. After that, the information would be sent via the Internet to a medical server. With this, doctors can better diagnosc patients and monitor their health rcmotcly. The dcvicc also has an cmergcncy alert fcature that notifies thc paticnt and doctors whcn sensor values exceed specified thresholds. Utilizing the Internet of Things (IoT) for remote monitoring and data collection, patients can avoid life-thrcatcning situations and rcceivc prompt, cost-citcctivc medical care. Users can also check their health indicators on a regular basis and seek treatment for any irregularities early with a potable health monitoring device.

Keywords: System on a chip (SoC), MQTT (Message Queuing Telemetry Transpoo), Internet of Things (IoT), remote health

Introduction:

A variety of risk factors, including eating habits, inactivity, and alcohol consumption, are contributing to an incrcasing number of chronic illncsscs in low- and middle-inconic nations. As indicated by World Wellbeing association, 4.9 million individuals kick the bucket from cellular breakdown in the luiigsthrough snuff use, 2.6 million hefty individuals, 4.4 million high cholcstcrol and 7.1 million hypcrtcnsion. Pcrsistcnt illnesses change enormously in their side effects development and theioreatments. Traditional tests in specialized health facilities were the standard method for measuring blood sugar, blood pressure, and hear rate for many years. I) Some, if not observed and treated early, can end a patient's like.

Paper ID: NCRDEAS-17

Utilizing Supervised Learning to Predict the Line Voltage Stability Index

Dr. Prasant Kumar Pani1, Dr. Umasankar Das2
1,2 Raajdhani Engineering College, Bhubaneswar, India
Email: pkpani@rec.ac.in1, umasankardas@rec.ac.in2

Abstract:

Stability issues have taken over in a dcrcgulatcd cnvironmcnt. For the powcr system to tunction propcrly, the powcr must be rcliable. The cnergy management center's system operator faccs new decisions regarding control strategies when faced with high and dynamic loading conditiOns frequently. The identification of weak buses is critical to achieving voltage stability. In the overloaded system, line stability indices are iinpooant predictors of weak buses. The first step in the control strategy is to find tlic weak buses. The Fast Voltagc Stability Indcx (FVSI) can be accurately predicted using a mcthod that is presented in this paper. It is based on an Artificial Neural Network (ANN). The ability of FVSI tO predict is the basis tor comparative analysis of various ANN topologies. The offline Newton Raphson (NR) simulation method is used to i erify the results. Over the IEEE- 14 and IEEE-30 test bus systems, the proposed methodology is evaluatcd.

Keywords: FVSI, IEEE test bus system, ANN, N-R Method

Introduction:

Many nations' power systems experience blackouts and technoeconomic depletions as a result of voltage instability issues [I]. The amount of voltage stability margin (VSM) that is readily available is, as a rcsult, an csscntial criterion for asscssing the viability of a power system network (grid infrastructurcs). In thc face of constantly shifting load demand and generation dynamics, voltage stahility monitoring (VSM) is frequently regarded as a means of determining how long a particular power system can continue to function [2,3]. It can theoretically be calculated as the distance between a current operating point and the closest voltage collapse point as real and reactive loading incrcascs continuously [4].

For the most part, tlic limit of existing latticc frameworks to oblige cxpandcd load and now and ‹again expanded agc, particularly from cnvironinentally friendly power sourccs, is exceptionally restricted.

Paper ID: NCRDEAS-18

Research on Minimizing Payment Cost of Multiple Cloud Service Providers

Prof. Rajeswari Chhualsingh1, Prof. Premananda Sahu 2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: rc@rec.ac.in1, psahu@rec.ac.in2

Abstract:
A lot of businesses today are inoving their workloads to cloud storage to save money on capital for buÎ lding and maintaining hardware infrastructures and to avoid the coinplexity of managirg data centcrs. This research aims to reduce the cost of payment for multiple cloud scrvicc providers. Cloud cornputing is now a well-known business service. Using thèse globally dispersed data centers, the C-SP (Cfond Service Provider) provides data storage services that include the Get and Put fonctions. The selection ot various CSP datacenters and cloud custorners faces two obstacles: the first is determining how to allocate data to the worldwide datacenters in ordcr to fulfill the requirement of ‹application Service Level Objectives (SLO), which includes both data availability and retrieval latency; the second Obstacle is determining how to allocate rcscrvc rcsourccs and data in thc dataccntcrs that bclong to various CSPs in order to ininimizc the cost of payment. Utilizing intcger-programming techniques to handle cost-minimization issues was the first step in determining how to resolve thèse issues. First, multicast-based data Transfer, thcn cociiicicnt-based data rcallocation, and finally, rcqucst rcdircction-bascd congestion and the PPM-C (Prediction by Partial Matching-C loud) data compression technique were used to cut do n on storage costs and processing time for data transfers.

Keywords: Administration Level Goals, Distributcd computing, Assets Reservation, CSP, Installment Cost Minimization, PPM-C pressure, and Information Accessibility.

Introduction:

Amazon S3, Microsoft Azure, and Cioogle C loud Storage are just a few examples of popular cloud storage services. Using its geographically dispersed datacenters, each cloud service provider (CSP) provides a glObal data storage service, including Gets and Puts. More and more businesses are shifting their data workloads to cloud storage in order to avoid the complexity of managing datacentcrs and save capital expcnditiires on building and maintaining hardware infrastructures [4].Web applications like web portals and online social networks offer services to customcrs all over thc world.Web applications, which havc an impact on the incomes of cloud customers, are impacted by thc availability and delay in data access. Experiments carried out at the Amazon pooal, for instance, [5) demonstrated that even a modest increase of 100 milliseconds in thc timc it takes to present a webpage significantly lowers user satisfaction and decreases sales by one percent.

Paper ID: NCRDEAS-19

Nationality Identification using Handwriting and signature biometrics

Dr. Prasant Kumar Pani1, Dr. Niva Tripathy 2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: pkpani@rec.ac.in1, nivatripathy@rec.ac.in2

Abstract:

Handwriting and signature biometrics, paoicularly in terms of identity recognition and verification have a long history. The process of handwriting analysis involves examining someone's writing. Clraphology is the term used in science to describe handwriting analysis. It is a techniue for extrapolating a person's personality and behaviour from his writing quirks. When crimes include people of dit't'ereot nationalities, it can he difficult tor forensic investigation teams to pinpoint the criinc. Thcrc arc many uses tor categorising handwriting according to factors likc age, gender, and nationality. Investigations in forensics can be narrowed down to a particular type of writer with the aid of handwriting classification. This project proposes a new method *FOR* cthnicity (nationality) identification.

Keywords: I landwritii g analysis, COLD features, Ethnicity idcntification, Nationality identification.

Introduction:

In today's world, numcrous crimes like robbery, rape, murder, genocide, suicide, and other fatalities are emerging, resulting in global high levels of insecurity. People become anxious and afraid as a result of the increased instability, making it difficult for them to complete their daily tasks. In Order to deal z ith this disaster, the government and other private sectors have hired a number of cxpcrts to look into the causes of damage and harm. The experts arc able to investigate and identify the criminals, who will thcn face consc•uences for thcir actions, by employing a collection of tools, materials, scientific measures, and theories. According to
Bogan& Roberts (2011), graphology is the study of the art of handwriting and the application of handwriting analysis to the evaluation of individuals in industries. The examination is a lcgitimatc sign of conduct and charactcr and hcncc a helpful instrument for thc majority modem cxercises like enlistmcnt, choice, dropping, meeting, profession arranging and group building. According to Bradley (2006), the investigation of graphology makes use of three hundred distinct characteristics. The understanding of psychological art that blends with the scribbling features is where graphologist knowledge lies.

Paper ID: NCRDEAS-20

Overview of Open-Source Machine Learning Products with Privacy Protection at the Level of Practice

Prof. Milan Kumar Saha1, Prof. Manjog Padhy 2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: mksaha@rec.ac.in1, mpadhy@rec.ac.in2

Abstract:

The purpose or this paper is to providc a high-level ovcrvicw of machine lcarning tcchniqucs known ‹is "Privacy-Prcscrving Machine Learning" that prescrve the confidentiality and privacy of customer data. Ot'fline-learning privacy methods' security practices are first evaluated. Those concentrated on cutting-edge cryptographic techniques like Homomorphic Encryption and Secure Multi-Party Computation, in additiOn to specialized software and hardware platforms like Intel R Software Guard Extensions (IntclO< SGX). Our Proof of Conccpt, in which the speed and accuracy of the security solutions will be cxamined, is the rcsult of combining various machine learning architectures with security approaches. The next step was to investigate and compare Open-Source Python-based PPML solutions. From almost 40 distinct, cutting-edge systems, four were chosen: SyMPC, TenSEAL, TF-Encrypted, and GramineTo demonstrate the capabilities of various librarics, three distinct ncural nctwork architccturcs wcrc crcatcd. Thc MNIST datasct servcs as the foundation for the POC's image classification solution. All of the considered securc approaches have cOniparable accuracy. as the computational results demonstrate. The difl'erence between secure and non-secure flow is not more than 1.2 percent. As far as secure calculations, the best Protection Safeguarding AI library depends on Confided in Execution Climate, trailed by Sccurc Multi-Party Calculation and Homomorpliic Encryption. Ncvcrthclcss, the majority of thosc are at lcast a thousand times slowcr than the unsccured evaluation. Sadly, it is unacccptablc in a real-WOfld situation. The implementation of hardware-accelerated secure computation, the exploration of additional cutting-edge libraries, and the combination of various security approaches are all possibilities for future work.

Keywords: Privacy-Preserving, Machine Learning, Deep Learning, algorithm

Introduction:

In the modcrn tcchnical era, the supcriority of DL models over humans has bccn obscrvcd. For instance, the Food and Drug Administration of the United States has granted approx al to an intelligent diagnosis system for medical images that do not require human intervention 1], [2]. The IPAS division of Intel employs Konrad Kuzniewski, KrystianMatusiewicz, and Piotr Sapiecha (e-mail: krystian.matusiewicz intel.cOm and piotr.sapiecha inte1.com) Machine Learning as a Service, or MLaaS, is thc tcrrn used in the scicntific litcrature to describe thc practicc of outsourcing dcep model training and evaluation to clouds. Thcsc scrvices are provided by cloud service providers like Google, Microsoft Azure, or Amazon Web Services. Numerous recent studies have raised concerns regarding the security and robustness of machine learning models [3-5] despite the impressive performance of DL algorithms. Additionally, there ar*c* concerns regarding the saicty of these algorithms' cxccution cnvironmcnts (6—8].

Paper ID: NCRDEAS-21

Covering Approximations Way to deal with Span Requested Data frameworks

Manas Kumar Rout1, Lisa Pattanaik2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: mkrout@rec.ac.in1, lisa@rec.ac.in2

Abstract:

lt is been demonstrated that the hypothesis of unpleasant set is cxceptionally attr antageoiis iii working with struggle issues actuated by the data charm The first thought ot the harsh set isn't exact, in any case, iv hen inclination orders of attributes spaces (standard) are to be thought of. A novel mathematical method *POf* Cstablishing a control-based rOugh set approach seeks the issue of covcring approximation in relation to a control relation in interval-ordered information systcins. Topological gencralizations, control relations, approximations, and intcrval information systems are all applied by these mathematical tools. Our method produces results that are more accurate than those produced by conventional methods like Pawlak's. With a single value, topolOgies replicate i arious types of iiifonration systems. We made the Pawlak approximation spacc into a covcring approximation spacc by defining a control relation for interval information systcins. Aftcr that, we use this method to work with interval-ordered information systcms. The proposed method's results allowed for the creation of two distinct rough approximations, the j- lower and j-upper approximations. Topological generalizations were used to apply j-rough concepts like membership, equality and incluvision relations. The optics Obtained from intcrval information systems havc bccn enhanced by our pi'oposcd rncthod. We cniploy tlic co ering ‹approximation in the rough set approach because thcre arc numcrous improved methods for investing generalized approximation relati› e to a control relation in interval infornialioii systems in this study. The Panlak strategy applied to inter al information systems has been extended to include this. Ry developing new algorithms that make the calculations easier, this stratcgy paves the way for additional gcncralizations.

Keywords: Topological Spaces, Rough Sets, Rough Approxilnations, Accuracy Measures, Data C lassitications

Introduction:

The primary objective of the Minimum Spanning Tree (MST) problem is to find the cheapest tree that covers all ii nodes ofa given edge-weighted graph Hi (V, E). Several natural generalizations and xariants of the problem hat e been considered in order to deal with the particulars of rcal-world applications. In the Stciner Trec problem, for instance, we only need to connect a certain subset of' W of' k terminal nodes. Instead, the objective of' the k-MST problem is to connect at lcast k (arbitrary) nodcs. Thcsc gcncralizations all havc onc thing in common: we hiive to design a singlc nctwork. Howcver, in many ‹applications, this is not the casc .For instance, assume we need to give basically k out of n clients with poster .

Paper ID: NCRDEAS-22

An Investigation of the Present Data Aggregation Method for Wireless Sensor Networks

Dr. Prasant Kumar Pani1, Dr. Umasankar Das2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: pkpani@rec.ac.in1, umasankardas@rec.ac.in2

Abstract:

The wireless sensor network plays a significant role in a variety of applications of the upcoming advanced wireless technology for efficient communication, including smart homes, the commercial sector, the defense industry, and modern agriculture. Throughout the communication process, there arc numerous issucs and difficulties. The most difficult and fascinating topic among researchers is energy conservation. This is because in ‹i wireless scnsor nctwork, therc are n sensor nodes that can recognize and send data to the base station or sink either directly or through an intermediate node. The data rate or flow is complicated by these low-energy nodes, which have a significant impact on the wireless sensor network's lifespan. Before sending the bcst data to the sink or anothcr dcvicc, the scnsor node must discard any unncccssary data it rcceives from nearby nodes in order to reduce energy consumption. Numerous sensors can identify a specific target when it is located in a particular sector. This paper presents the Data Agglorneration Technique, which is one of the persuasive methods for ignoring unnecessary data, increases WSN lifespan, and improves energy efficiency to address this issue. The effective data aggrcgation paradigm can also reduce nctwork traffic. Tlic various data agglomcratiOn techniques for maximizing energy efficiency in WSN were discussed in this paper.

Keywords: Data agglonicration, clustcring, cncrgy-saving routing.

Introduction

A wireless sensor network is a network without cables that connects routers, base stations, sensors, and Other devices. Among these sensors, humidity, temperature, health monitoring, targct tracking, survcillancc, wind direction and spccd, power-line voltagc, vibration intensity, prcssure, sound, motion, pollutants, ‹ind seismic cvents, among other things, play a significant role in this field (I -4). Remote sensor network contains n number of assortments ot’ remote sensor hubs. The energy that these groups of wireless sensor nodes need to collect, analyze, and send their data to a sink or base station over the network is limited. The sink acts as an intrusion bctwccn the user and the nctwork. Scnsor nodes arc lightweight, portable, and small. Radio signals arc being used to communicatc among scnsor nodes. A transducer is one of four components that each sensor node uses to generate electric signals from sensed data. Second, the sensor's output is processed and saved by microcomputers. Thirdly, the transceiver transmits data to the computer after receiving it from the server. Last but not least, the battery's energy source is thc most important factor (5). If a sensor nodc stops working bccausc it doesn't have enough cnergy, therc will be a big problem and the protocol will fail badly (6). The battery cannot bc recharged while the nOdes are deployed in a belligerent environment.

Paper ID: NCRDEAS-23

Slicing-based energy-efficient data aggregation protocols

Kumari Shradha1, Kishore Chandra Panigrahy2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: ks@rec.ac.in1, kcpanigraphy@rec.ac.in2

Abstract

Wireless sensor networks (WSNs) have emerged as one of the most robust strategies in the nctwork domain. Howcver, due to their broadcast communication mode and unattcnded deployment, WSN sensor nodes frequently becOnie targets tor criminals. Slice-Mix-Aggregate (SMART) nccds to cxchangc mcssagcs frequently in a network, which puts a lot or strain on sensor nodes with limited resources, despite the fact that it can prevent sensitive data from being compromised. This paper proposes an energy-efficient and privacy-preserving data aggregation protocol based on slicing (EPPA) to addrcss thcsc issues. EPPA uscs a novel slicing inodc to reduce the number of slices and can significantly reduce communication overhead while also significantly preventing data compromise. In the meantime, an improved EPPA-based scheme known as the multi-tunction privacy-preserving data aggregatiOn protOCOl (MPPA) is presented. MPPA supports multiple data aggregation functions such as max/min, count, and mean. The proposed aggregation protocols pcrform better in tcrms of privacy protection and communication efficiency, according to the theOretical analysis and simulation evaluation.

Keywords: Privacy preserving, Data aggregation, Data slicing, Euclidean-based decomposition

Introduction

Low-power wireless embedded sensors have emerged, highlighting their potential for remote data collection and sensing. This has significantly aided in the spread of the Internet of Things (IoT) in apr ications like: brilliant urban communities, guard, reconnaissance, medical services, horticulturc, powcr nctwOrks, and so on. A battcry-powered cmbcddcd wirclcss sensor that typically consists of a transceiver, antenna, microcontroller, and the sensing mechanism is central to this development. The ability to aggregate, process, compute, communicate, and nctwork with other wirclcss sensors, actuators, and IoT dcviccs is given to the wirclcss scnsors.

Paper ID: NCRDEAS-24

Semi-supervised Hierarchical Optimization-based Propagation Algorithm

Kaushik Mishra1, Kamalakanta Padhi2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: kmishra@rec.ac.in1, kpadhi@rec.ac.in2

Abstract:

The Semi-supervised Hierarchical Optimization-based Affinity Propagation Algorithm (SHO- AP) was proposed as an improved AP algorithm due to the low accuracy of the original Affinity Propagation (AP) algorithm, which is greatly influenced by preference (P) when adjusting it to Obtain the true class number Of clustering. This is due to the fact that the accuracy of clustering is not high. The calculation presents the possibility of semi-oversight, by setting a specific extent of name information and utilizing the AP to group, then lay out the management and non-oversight data framework to upgrade, and consolidate the cOnsequence of AP calculatiOn. The final clustcring results are combined using hierarchical optimization. The experiment on UCI data sets demonstrates that the proposed algorithm outperforms the conventional AP algorithm in terms of quality and the number of classes.

Keywords: Prior knowledge, hierarchical optimization, and semi-supervised clustering

Introduction:

More and more data are being made available in open source as a result Of the effective and rapid pace at which information is gathered. In genuine grouping errands, a huge pan of tests in datasets are unlabeled, and getting their names is exorbitant and tedious. In machine learning, One of the most impooant issues is how to fully utilize unlabeled data and investigate the pOtential ValUC Of unlabeled samples. SSL has been proposed as a solution to the problem of a lack of labcled samples because it can use both a large proportion of unlabeled samples and a small number of labeled samples to imprOve learning performance [1,2]. As of late, different SSL calculations have been proposed, for example, transductive help vector machines (TSVM) [3], co-preparing [4], name engendering calculation (LPA) [5], mixmatch [6], fixmatch [7], and so on. In addition, many real-world tasks use SSL, such as object detection [5,9,10], remote sensing [l1,l2,l3,l4,l5,l6,l7,l8,l9,20], and data mining [21,22].

Paper ID: NCRDEAS-25

A survey of difficulties and arrangements in the plan and execution of profound chart brain organization

Kamal Lochan Samal1, Jnana Ranjan Behera2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: klsamal@rec.ac.in1, jrbehera@rec.ac.in2

Abstract:

The study of graph ncural networks has shown that thcy can open up new applications in a widc range of fields by employing a fundamental method that is beyond the scope ot other deep learning designs. In order to fully utilize the power of graph data, researchers are working to overcome a number of limitations that limit their expressiveness. There are a number of publications that look into the limitations and bottlenecks of graph neural networks (CiNNs), but onc thing they all have in common is that they can all be traced back to message passing, which is the main method we use to train our graph models. In this study, we describe the general GNN dcsign pipclinc, discuss solutions to the ovcrs nioothing problem, classify those solutions, and identify research challenges.

Keywords: Ovcr-smoothing and ovcr-squashing in graph ncural nctworks and geometric deep learning

Introduction:

The "vague reaction of the body to any request upon it" that is referred to as stress is a p‹irticularly fascinating and full of feeling state. This is due to the harmful effects of long- distance stress, which can cause everything from headaches and trouble sleeping to an increased risk of cardiovascular discascs. Mcntioiiing position arc a basic justification for tension in pcople. Some of the things that cause prcssure include bcing constantly opcn to risk, having short cutoff times, doing extensive work, or even running boring errands. As a result, pressure-relief mcdiations could be initiatcd with the help of non-intrusive pressure-detecting instrumcnts that persistently monitor feelings of anxiety while having negligible effects on specialists' regular routines. These applications were unable to provide better and less expensive mediations in stressful workplaces; however, they did provide more advantageous conditions in which employees were more likely to manage their responsibilities.

Paper ID: NCRDEAS-26

The Effect of Business IT Key Arrangement on Corporate Execution

Jignyasha Patnaik1, Jharana Das Adhikari2
1,2 Raajdhani Engineering College, Bhubaneswar, India
Email: pkpani@rec.ac.in1, umasankardas@rec.ac.in2

Abstract:

The Fffect of Strategic IT Alignment in Business on C-orporate Performance The function of information technology is csscntial to the advancement of a company's businciss managcnicnt. In the fierce competition, paoicularly among distributors of electrical appliances, businesses must employ strategies to ditt'erentiate themselves and cut costs. By streamlining IT/IS. the implementation of cost reduction reduces business processes. However, information systems like stock data collection and transaction problem reposing have not yet been implemented in businciss proccsscs. As a rcsult, businciscs must devise thc appropriatc technology stratcgy in ordcr to adapt dynamically to technological shifts. In light of the issues that emergc, this exploration is simply restricted to vital preparation of data frameworks and application portfoliOS utilizing the Ward and Peppard approach since it centers around planning the organization's interior outside factors with respect to business and innovation. Within five years, this study hypothesizes that the determination of the stratcgy can rcsult in the successful implcmcntation of the application in an elcctrical appliance distributor company. The exploration stage starts with gathering information from the writing, meets, and direct perception. Utilizing the Ward and Peppard method, conduct a subsequent investigation of both the internal and external environments. The mapping of the Critical Success Factors (CSF) that must be e› aluated using the IT Balanced Scorecard is based on the findings of tlic cnvironmcntal analysis. An application portfolio rcpresents the proposed strategy for businciss, managcment, and lT systems that emerged thorn this investigation.

Keywords: Stratcgic Planning, fi ai‘d and Peppard, CSF, IT Balanccd Scoi‘ccai’d

Introduction:

All through a large portion of present day business history, organizations have endeavored to open worth by matching their designs to their systems. For instance, as mass production took hold in tlic ninctccnth century, businesses ccntralizcd key liinctions like operations, sales, and finance to create enormous economies of scalc. A rival model emerged a fcw decades latcr as businesses expanded and expanded their offerings. Businesses like General Motors and DuPont organized themselves into business units based on products and geographic markets. While sacrificing some economies of scale, the smaller business units were more adaptable and flexible to local conditions. These two plans of action brought togcthcr by capability versus moderately decentralized sidc-cffect and locale demonstrated solid for quite a while, to a great extent on the grounds that the develOpment of business association was genuinely gradual. In fact, the product division structure was the most popular model for at least 50 years. However, as competition increased in the final quarter of the 20th century, issues with both models became apparcnt, and businciscs sought out novel organizational strategies to unlock corporate value.

A Kernel-Based Node Localization in an Anisotropic WSN

Gagan Kumar Sahoo1, Durga Prasanna Mohanty2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: gksahoo@rec.ac.in1, dpmohanty@rec.ac.in2

Abstract

The primary issue with wireless sensor networks (W SNs) is still the localization of scnsors. Low accuracy is the fatal flaw of range-tree node localization in WSN, which is unfortunate. The problem of anisotropic WSN nodc localization is transformed into the problcni or kernel regression whcn we apply kcrnel rcgression to it in this papcr. Classical DV-Hop is contrastcd with the proposed radial basis kernel-based G-LSVR and polynomial kernel-based P-LSVR in isotropic and anisotropic WSNs with varying proportions of beacons, nctwork scales, and communication range disturbances. Ci-LSVR presents the best limitation exactness and dependability from the reenactment results.

Keywords: WSN, DV-Hop, Localization, localization accuracy

Introduction

Localization of wireless sensors remains the primary issue with wireless sensor networks (WSN) at this time. The confinement calculations of WSN can be grouped into the reach based estimation technique and the reach tree estimation strategy. The t3rst can achieve high accuracy with range information [1—4], whereas the second can achieve low accuracy without range information.

Machine learning is applied to the localization of WSN in order to enhance the accuracy of range-free node localization [5]. Paoicularly, range-free localization algorithms made use of artificial neural networks (ANNs), and when compared to other traditional algorithms, their accuracy and performance were significantly improved [6-12]. In addition, Phoemphon et al. 13, 14] have utilized rangc-free localization in WSNs with fuzzy logic. The less complex heterogeneOus scenarios are the primary focus of this algorithm. A diagram based restriction calculation was introduced utilizing regular brain organizations (CNN) and support vcctor machine (SVM) [15] in the paper. In [l 6], another SVM-based localization stratcgy for massive WSNs was proposed.

Paper ID: NCRDEAS-28

A study on Artificial Intelligence in Power Systems

Debasish Mohapatra1, Biswajit Pradhan2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: dmohapatra@rec.ac.in1, bpradhan@rec.ac.in2

Abstract:

A continuous and reliable supply of electricity is necessary for the functioning *OF* today's modern and advanced society. Since the early to mid 1950s, most of the effort in power systems analysis has turned away from the methodolOgy of formal mathematical modelling which came from the ar*cas of* operations research, control theory and numerical analysis to the lcss rigorous and less tedious techniques of artificial intelligence (AI). Power systems kcep on increasing on the basis of geographical regions, assets additions, and introduction of new technOlogies in generation, transmission and distribution of electricity. AI techniques have become popular for solving different prObleins in power systems like control, planning, scheduling, forecast, etc. These techniques can dcal with difficult tasks faccd by applications in modern large power systems with even more interconnections installed to meet increasing load dcmand. The application of these techniques has been successful in many areas of power system engineering.

Keywords: Artificial intelligence, Power system engineering

Introduction:

The primary objcctivc of powcr system control and operation is to ensure the stability and dcpendability of power systems and providc customers with high-quality, cost-effective electricity. As a result, planning for power system inOnitoring and control is necessary. However, as the electric power system grows, so does the demand for its safe, cost-effective, and dependable operation. As a resuit, the workload of staff members has also increased. The PC programming of the current EMS.focus is normally the mathematical examination programming, it is troublesome to have the objective handling in activity of the power framcwork, particularly in the shOrtGoming condition. The et'ficiency with which incidents are handled and the workload of operational staff are both greatly reduced when artificial intelligence techniques are used to assist their in checking and judging. This is one of the primary reasons why artificial intelligence rcscarcli has grown in popularity in recent ycars [1].

Paper ID: NCRDEAS-29

A Data-Driven Approach to Air Conditioning System Fault Detection and Diagnosis

Anup Kumar Nanda1, Anshuman Bhuyan2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: aknanda@rec.ac.in1, abhuyan@rec.ac.in2

Abstract:

In reccnt years, extensivc building equipmcnt automation has resulted in the accumulation of a significant amount of Operation data for air conditioning systems. This data can be used to investigate Fault Dctcction and Diagnosis (FDD) for air conditioning systems. For FDD modeling of air conditioning systems, a data-driven approach based on intrinsic correlation and data regularity is more ads aotageous. AccOrding to the relevant literature, input ti ainiBg samples are necessary tor data-driven FDD models. A literature review is divided into sections according to whether the data-driven methods are supervised or unsupervised and whether the training samples have labcls, such ‹is fault labels. Regrcssion and classification are two examples of super ised data-driven methods. Principal Component Analysis (PCA), cluster analysis, and association rule mining arc cxarnplcs of data-driven tcchniqucs that do not necessitate supervision. An investigation and synopsis of the benefits and impediments of directed and solo techniques has been led according to the viewpoints of indicative precision. scope, model appropriatcncss, and cstiiuation. This paper providcs an ovcrvicw of tlic i'clatcd litcraturc on data-driven fault detection in HVAC can be found in HVAC systems and the use of data-driven fault detection in HVAC, AHU, and chiller systems. This paper offers some suggestions and further research directions, such as the development of' hybrid FDD approaches, in light ot' the difficulties in developing data-driveN methods.

Keywords: FDD, Data-drive, HVAC, Supeo•ised technique , Unaided strategy.

Introduction:

The construction industry consumes 35% of all global energy 1, while HVAC systems consume 50*/» — 60*/» of all energy used in buildings2. In HVAC“ systems, a number of components operate bclow optimal le› mls 3. 261 out of 1251 Variable Air Volume (VAV) tcrmiiials in a Hong Kong commercial building were operating abnonrally, according to a study by Qin and Wang. Roth ct al. found commercial buildings in the Unitcd Statcs 5 discovcrcd that 13 critical failures account for 4- l S^{O}b› of thc cnergy consumed by rcfrigcration, HVAC. ‹ind lighting systcins. Energy can be wasted, equipment life can be shonened, the indoor em iroirrent can be unpleasant, and many othcr issucs can occur ii an I-IVAC systcni fails. Poor cquiprncnt maintcnancc, improper component performance, installation failures, and control errors6-'9 can all have a negative impact on the effecti eoess *OP* HVAC systems.

Paper ID: NCRDEAS-30

A Simple and Quick Method Based on SPT Results to Calculate the Installation Torque of Multi-Helix Piles in Clayey Sand

Subhendu Sekhar Sahu 1, Srikanta Kumar Dash 2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: sssahu@rec.ac.in1, skdash@rec.ac.in2

Alistract

The purposc of this study was to dcvclop a nicthod that could quickly and casily dctcrininc the installation torque of multi-hclix piles, which are frequently used as guy-wire anchors and foundations for transmission line towers in Brazil. III Order tO aCcornpllSh this, an equation was crcatcd taking into account the thcoretical connection that cxists bctwccn tlic installation torquc, the pile tiplitt capacity, and the effect ot soil disturbance on the torque that is resisted by the pile shaft and hélices during installation. The data from 57 l six-helix piles installed in clayey sand sites were need to tit the proposed expression (457 ɾiles served as the traiiiing dataset, and 114 piles served as the validation dataset). This study found, among other things, that (i) the measured-to-predictcd ratio for thc training dataset is 1.00, with a COV of 10.2%, whilc the measured-to-predicted ratio tor the validation dataset is 1.01, with a COV OU l l %; (ii) Àli) correction factor based on the av cragc N-value of the soil around the first thrcc tapcrcd hcliccs was used to improve the method's accuracy; iii) The ton ue that was obtained using the current method was also in line with the prediction of the installatiOn torque wade t‹OtTt ädditional four- helix pilc data, dcspitc bcing slightly conscrvativc; (iv) A paramctric analysis rcvcals that the area of the helices has a signiticant impact on the installation torque. Finally, in the event that the installation torque of multi-helix piles is comparable to that of the database, which is typical of Brazil, the method described in this note can successfully predict it.

Keywords: installation torque, multi-helix piles, database, training dataset

Introduction:

A non-displacement pilc foundation known as a helical pile implements bearing capacity by affixing at least one helix plate to a hollow shatl that is rotary-poised into the ground. Using a torque machine that directs rotary penetration to a specified depth, the helical pile can be installed with low noise and vibration. This pile can be installed in areas with limited installation space, such as commercial buildings or historic sites, with a rclativcly small machine. Bccausc helix plates with a diameter larger than thc hollow shaft are attached to the helical pile, each helix plate has end bearing capacity, making it superior to conventional steel pipe piles in teas of bearing capacity for material costs [1]. The bearing capacity of helical piles has been investigated in relation to both the hollow diameter and the helix diameter. The majority of hclical pilcs havc a standardized shape.

Paper ID: NCRDEAS-31

A study on an alternative self-starting generator that makes use of ESS

Somanath Mishra 1, Satyajit Mohanty 2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: smishra@rec.ac.in1, smohanty@rec.ac.in2

Abstract:

ESS is widely used in Korea's FR power' sj stein. liisteati or using the sel i*stai'ting generator, e prt p‹ sc in ihis paper a nicthod for starting tlic supply gcncrator b› acti› at inc thc ti anemission liiic to tlic ESS u hen one part of the systcni is completely out of ordcr. Through the calculation ot powcr flow and ti'ansicnt stability, simulation should be carricd out to dctcrminc if' rcplacing the self-starting generator with the USS Foses any chiillenges. For the simulation, u e utilized
Actual KE PCO system data and the C"BEST model trout EPR I.

KEh W ORDS: ESS. Backout, self-striting, C BEST

Introduction:

Due to rising global demand, particularly in developed and emerging nations, whore sustainable energy solutions arc now nccdcd to replace cor vcntioi at cncrgy rcsourccs used to gcncratc powcr, such as fossil fuels [I]. Ft ssil fuel-bascd cnci gy sourccs arc to blaiiic for damaging environmental problems including climate change and global warming [2]. In the last several decades, the amount of grecnhoiise gases released into the atmosphere as a result of electricity production has drastically grown [3]. In order to combat the present environmental problem, Renewable Energy (RE) technologies as solar, wind, hydro, biomass, geothermal. and hydrogen energies have been introduced to create ponder [[4], [5], [6]]. RE is receiving more and more attention as a result of' their ecologically favourable qualities and capacity to produce electricity w ith zero or practically no production of air pollutants.

Paper ID: NCRDEAS-32

Development of an Intelligent Energy Management System with Economic Dispatch from a Standalone Microgrid

Sasmita Jena 1, Pratap Chandra Mishra 2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: sjena@rec.ac.in1, pcmishra@rec.ac.in2

Abstract:

The niicrogrid conccpt has bccn widcly utilized for grid-coiincctcd distributcd cncrgy rcsourccs. During grid fail ures, that can function connected to or disconnected from the main grid. Microgird operations face new difficulties as a result of this integration. For optimal energy scheduling of these distributed energy resources, an energy management system is therefore nccessary. A novel control str‹itegy for optimum energy management and economical microgrid dispatch is prcscntcd in this paper. The proposed system's performance is evaluatcd in thrcc casc studies that take into account power balancing, maximizing the utilization of reneable energy, monitoring the battery state of charge, fuel cost optimization, real-time information exchanges, and satisfying the system objective constraints. Typical results are presented with initial state of charge, load profile, and meteorological conditions as variables parameters.

Keywords: Microgrid, distributed energy rcsourccs, cncrgy inanagcmcnt system, economic dispatch, fuel cost optimization, real time information exchanges, objectives constraints.

Introduction

In this riper, the "recovery plan at all power tnilure" established and *Operu‹eâ* at the current power exchangc was examincd to sce how stablc the electric power system would be in the evcnt of rcplacing the original gcncrator with BESS. Due to the position constraints of hydraulic powcr and pumped-storage pOwer generation, recovery plans that make use of existing self-staring generators have the disadvantage of generating high voltage for an extended period of time using transirissiOn lines. By substituting the original starting and generator, we used BESS to analyze with the expectation of the effect that high speed could shonen the rccovery time and reducc it to the time transmission line.

Paper ID: NCRDEAS-33

A Linear Switched Reluctance Motor with a Modified Structure for Linear Propulsio□ of a System

Julee Margarette Suthi 1, Guru Prasad Dash 2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: jmsuthi@rec.ac.in1, gpdash@rec.ac.in2

Abstract:

The dense population of Indian citics ncccssitatcs rapid transportation systcms. The dcvclopnicnt of an efficient intcrcity transportation system is now the urgent rcquirement as a viable option. Due to its speed of travel, promptness of service, and effectiveness, railway transportation possesses all of the characteristics necessary for contemporary intercity transit systems. Due to the inherent advantages of linear motors over rotary motors used in these systems, linear motor- powered railway systems arc gaining popularity among the nuincrous railway systems available worldwide. The propulsion systems of these transports make extensive use of lincar synchronous and linear induction motors. However, linear switched reluctance motors (LSRMs) are the subject of a great deal of research for use in such applications due to their straightforward construction and lower manufacturing and upkeep costs. Nevertheless, this motor's force performance is altcrcd by its nonlincarity. As a result, the Mumbai monorail train system, which was just rccently dcvelopcd, is made possible by ‹i modificd structure of LSRM presented in this paper. The actual Mumbai monorail system's rail car specifications are taken into consideration when developing the linear propulsion system. The changed LSRM is intended to meet these determinations and dissected utilizing limited component technique.

Keywords: LSRM, Linear synchronization, transport system

Introduction

Because of the incessant event of worldwide energy cmergencies, another encrgy innovation h‹is been created, the exchanged hesitance engine (SRM). It has numerous application possibilities in contemporary industries, such as the electric vehicle, household appliance, and textile machinery industries [1,2,3], thanks to its low cost, straightforward structure, simple maintenance, and superior reliability. The twofold striking shatt construction and exchanging control mode cause the profoundly nonlinear and firmly coupled electromagnetic qualities of the SRM, bringing about the issue of enormous force throb when the SRM is running, panic«larly at low rates. Motor torque pulsation can cause vehicle noise and resonance issues at certain frequencies in electric vehicle applications.

Paper ID: NCRDEAS-34

Transient Stability Constraints and Improved PSO for the Best Power Flow

Dr. Prasant Kumar Pani1, Dr. Umasankar Das2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: pkpani@rec.ac.in1, umasankardas@rec.ac.in2

Abstract

Staibility is a crucial constraint in powcr systcm preventive control against blackouts triggered by transient instability (TS) fOllowing a contingency in improved PSO applied tO the optimal pos er fiow. In recent years, the Transient Stability Constrained Optimal Power Flow (TSCOPF) has received a lot of attention. By incorporating transient stability constraints intO the conventional Optimal Powcr Flow (OPF) problcm, this papcr proposes a novcl approach to its solution. To address the TSCOPF, the Improved Particle Swarm Optimizer (IPSO) was developed. Thc Western System Coordinated Council (WSCC) 9-Bus system and the IEEE 30-Bus system are used to test the proposed method. The findings demonstrate that the proposed formulation has significantly improved system stability.

Keywords: Power System Stability, Transient Stability Constrained Optimal Power Flow (TSCOPF), Improved Particle Swann Optimizer (IPSO), Optimal Power Flow (OPF), Power System Contingencies.

Introduction:

Transicnt stability in the power system can occur for a v‹iriety of reasons, including the occurrence of a fault, an abrupt generator outage, an abrupt line outage, or an abruptly large increase in load. lt is significant issue and more dependable to work under stable power framework and stay with providing the electrical energy under these states of transient strength. The gcncrator rotor angle is one of the most crucial indicators in the analysis of transient st‹ibility. An increasc in the generator rotor angle may result in power system instability. Any delay in clearing the tñult by the circuit breaker results in an increase in the generator rotor angle swing and instability 1].

The Optimal Power Flow (OPF) is one of the most imponant methods for rcdiicing powcr system instability and increasing transient stability analysis. Optimal Power Flow is a static nonlinear optimization tool for resetting the control variables to satisfy a different equality and inequality constraint while also meeting a minimum objective function. In order to resolve the system's instability, transient stability arc utilizcd as incquality constraints in the state variablcs of the OPF analysis in this anicle.

Paper ID: NCRDEAS-35

Using Multi Hop Data Aggregation to Increase Energy Exertion in Wireless Sensor Networks

Sasmita Jena 1, Pratap Chandra Mishra 2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: sjena@rec.ac.in1, pcmishra@rec.ac.in2

Abstract:

The multi-hop LEACH, hybrid cncrgy ctticient distributcd (HEED), and ad hoc on dcmand distance vector (AODV) protocols are discussed. The sensor is chosen as CH in multi-hop clustering based on the sensor nodes' maximum envelops pOsition and two parameters. The purpose of the multi-hop LEACH ÎS tO alternately select SNs as CHs. The enormous energy consumption required to exchange information between the BSs extends to all sensor nodes in the set of nctworks. Evcry nodc will choosc the prcscncc cluster licad (CH) based on the minimal packet friture using this sequence. Mat Lab simulations show that when choosing the best communication path, taking into account packet failure has a significant impact on reducing the amount of energy used by the coinplex network at a time when network throughput is higher than ever.

Keywords—Energy Excrtion, Routing Protocols, Packet Failure, Wireless Sensor Networks

Introduction

WSNs are glohal, sett-configuring, self-coordinating networks with no infrastructure that enable air-to-ground data exchange. As microelectronic systems, these netwOrks' nodes are primarily rcsponsible for phcnomena identification, local data proccssing, and data transmission or reception. The *tOu‹* components ot' the sensor nodes (rnotes) are depicted in Figure 1 [I]: an cncrgy source, a dctccting component, an information stockpiling unit, and a transmitter. With superior authority for external base st‹itions (BSs), they are able to control the number of sensor networks that interact with one another across a larger number of geographical areas. Vehicle communication can be improved by using hybrid cllular nctworks with a multi-hop VANET and a high volume of information transactions by reducing the median transmission time, reducing packet loss ratios, reducing overhead, and improving packet delivery and efficiency [2].

Paper ID: NCRDEAS-36

An Invcrtcd-H Shapcd Multiband Fractal Micro strip Patch Antenna mm Cog□itive Radio Abbre› iation

Somanath Mishra 1, Satyajit Mohanty 2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: smishra@rec.ac.in1, smohanty@rec.ac.in2

Abstract:

1 he purpose of this paper is to pt event the design and fabi icaiion oF an inc erted-H -shaped iniltiband 1?actal inicrostrip antenna for spectrum sensing in cognitii c radio applications. In ordcr to achicvc the tlcsirctl perforin‹incc in timc frC*l*lClicies Of 1.3S2 fiHz, 2.623—3.10 1 GHz, 4.fi2S—l 1.95 Oil Iz. and 1 3.22—20 €iIIz, lurihci cI'Ioi ts arc made to optimize timc proposcd antenna using the nature inspii'et1 nietalieuristic Moth flame optimization. Iii accordance w itli the requirements of sFeciimr sensing antennas for eogniti e i adio applicaiions, this antenna features multiple widc bands and a nearly oinnidircctional radiation pattern.

Keys› ords: rnicrostrip, metaheristic, radiation pattern

Introduction:

Linear switched reluctance machines (LSRMS) and lincar electric machincs in gencral arc attracting a lot of attention right now. Despite the fact that LSRMs have a force-to-volume ratio that is approximately 60% lowcr, they arc still an appealing altcrnativc to pcrinancnt iuagnct linear motors (PMLM) [1). On the other hand, they are more robust and have a good capacity for fault tolerance due to the absence of permanent magnets, which also makes them less expensive and simpler to assemble. LSRMs have been proposed tor a large number ot' uses, for example, exact movement control [2], impetus rail route transportation frameworks [3], vertical interpretation [4], dynamic vehicle's suspension framework [5], life-support applications [6], and in direct-drive wave energy transformation [7].

Paper ID: NCRDEAS-37

Using a Rough Set Method, Mathematical Modeling for Predicting and Classifying Neo□atal Infections

Subhendu Sekhar Sahu 1, Srikanta Kumar Dash 2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: sssahu@rec.ac.in1, skdash@rec.ac.in2

Abstract

The majority of human contagious discascs attcct ncwboms. Our goal is to providc a prediction for these ‹liseascs, which are responsiblc for millions of deaths. Rough set technique was used to analyze the symptoms of these diseases with the fewest attributes, and a time series model was used to predict which discascs arc contagious.

Keywords: Al-Artificial Intelligence, RST-Rough Set Theory, CS-Congestive Scicnce, ML- Machine Learning, KD-Knowledge Discovery, A-Data Analysis, Data Mining and Time series

Introduction

A computational approach for dealing with obscurity and blurriness is RST. For prediction, the TSM statistical method is used.Utilizing DA and DM tools significantly enhances computational information through these methods. Using RST, the evolutiOnary algorithm can be translated intO mathematical approaches through Al and CS, two alternative computational pathways. Lower and Uppcr approximations, dcnoted by () x x and U U (), respectively, constitute RST's fundamentals. Our intention is to obtain boundary-related results. The work basically tries to cut down on approximate errors by using the RST tcchniquc. Soft computing and statistical analysis are mixed up in this. with the intention of producing accurate predictions [7, 8, 9]

Paper ID: NCRDEAS-38

Enhancement of the magnetic flux leakage signals used to detect surface defects o□ rail tracks

Manas Kumar Rout1, Lisa Pattanaik2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: mkrout@rec.ac.in1, lisa@rec.ac.in2

Abstract:

Non-destructive testing of rails, pipelines, and storage tanks frequently makes use of magnetic flux leakage (MFL) detection. The spillage attractive field (LMF) of a deformity, particularly a little imperfection, is generally frail. An LMF sensor here has t'errite added to it to make it easier to find small rail surface defects by increasing the magnetic intensity above them. Simulated and expcrimcntcd studies of the effects of tcrritc cross-scctional shape and size have rcvcalcd the ideal dimensions for signal enhancement. To smother the obstruction brought about by the variety of the takeoff distance, two Lobby sensors are presented and a differential circuit is intended for signal post-handling. It has been demonstrated through experiments and simulations using finite elements th‹it ferrite significantly enhanccs MDL signals.

Introduction:

The underlying presentation and administration status *OF* rails are vital tO the wellbeing of railroad transportation. Consequently, an assortmcnt of non-damaging testing strategics are utilizcd for dcformity recognition], ior example, the regularly utilizcd ultrasonics and swirl current methods. However, the fatigue damage on the rat1's surface cannot be detected using the ultrasonic method. In addition, the eddy current method is not appropriate for rapid detection.

Paper ID: NCRDEAS-39

The Implementation Of Nonlinear Filters For Improving Medical Images With The Use Of Matlab

Kamal Lochan Samal1, Jnana Ranjan Behera2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: klsamal@rec.ac.in1, jrbehera@rec.ac.in2

ABSTRACT:

Despite the significant ‹idvancements in medical imaging tools, thcre are still human errors made during the process of filming medical images. These errors cause distouions in the image and altcr sonic medical imagc propcrtics that accurately atTcct the diagnosis of a discasc. Clinical pictures are one of the central pictures, since they are utilized in the most touchy tield n hich is a clinical field. Using the most powerful and widely used image processing sofiware, MATLAB, the purpose of the study is to detenrine how iioii-linear filters at't'ect the enhancement of medical images. The researcher came to the conclusion that, once the method was put into practice, the median filter—une of the non-lincar filters that arc implemcnted with Matlab functions—would produce the best results for medical image enhancement.

Keywords: Enhanccmcnt, median filter, noisc reduction, maximum and minimum filtcrs, non- linear filters, and so on.

Introduction

Image fusion handles various combinations of sensed images. These sensed images are acquired from a variety of sensors that allow for high and multi spectrum view ing at a variety of angles and resOlutions, which improves assessment for achieving image quality. Multi-sensor images are utilized in a wide variety of fields, including computer vision, remote sensing, and medical imaging. Because thc multi-model fuscd image contains more significant information than a single image and IS a cOnibining procedure of complement fiision methodologies for clinical asscssmcnt, fusion of medical imagcs produces a good informative imagc for clinical assessment.

Paper ID: NCRDEAS-40

Energy Productive Calculation for Remote Sensor Organization utilizing Fluffy C-Means Grouping

Prof. Santosh Kumar Naik1, Dr. Umasankar Das2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: sknaik@rec.ac.in1, umasankardas@rec.ac.in2

Alistract:

Energy productivity is an imperative issue in remotc sensor organizations. An cnergy-efficient routing algorithm has been proposed in this paper to extend the network's lifespan. The optimal numbcr of static clusters has been crcatcd using fuzzy C-Means clustcring in this study. To avoid excessive energy loss, redundant data generation and transmission are eliminated using the coherence concept. Intra-group and between bunch doors are utilized to keep away from hubs from sending iiitonratiOn through significant distances. For direct data transmissions, a novel strategy has been proposed to select sturdy nodes close to the sink. Based on lifetime, average cnergy consumption, and throughput, the proposed algorithm is comparcd to LEACH, MR- LEACH, MH-LEACH, and OCM-FCM. FrOrn the outcOmes, it is affirmed that the exhibition of the proposed calculation is obviously superior to ditTcrcnt calculations and is more appropriatc for execution in remote sensor organizations.

Kevivords—WSN; clustering; sleep-awake; virtual grids; multi hop; routing

Introduction:

Urban electric power consumption has significantly increased due to rapid industrialisation and urbaiiization (EPC). China's National Bureau ot Statistics conducted a survey that found that dornestic electricity consumption per person has increased from 515.0 kWh in 2013 to 732.1 kWh in 2019 [1]. EPC is rising as a rcsult of both econoinic activity and climate change. By 203tl, cities must be inclusive, sat'e, resilient, and sustainable, according to Sustainahle Dcvclopmcnt Goal l1 (SDG 11) [2]. For this objcetivc to be achicvcd, rcsidcnts must havc access to elcctricity service facilitics. The data foiindation for accomplishing this objective is provided by fine-scale acc«rate and dependable CPC distribution estimatiOn. In this study, EPC primarily rcfcrrcd to domcstic usc and rcsidcnts, who wcrc closcly linkcd to the urban cconomy, population, and living conditions. Momentum metropolitan EPC information fOr the rnost part exists as measurable information as authoritative units, which can't address the issue for fine- scale metropolitan manageability research because Of coarse goal. As a result, the creation of a method for fine-scale gridded EPC estimation is urgently required.

Paper ID: NCRDEAS-41

Energy-Efficient Cluster-Based Fuzzy Enhanced Multicast Protocol for Increasing Network Lifetime

Dr. Prasant Kumar Pani1, Dr. Umasankar Das2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: pkpani@rec.ac.in1, umasankardas@rec.ac.in2

Abstract:

The sensor node in a wireless sensor network (CWSN) is mobile and can roam both within and outside the network. The best routes for forwarding packets are what prescnt existing models have fOund to be difficult. It may result in a decrease iii the lit'etiine of the network if the balancing or packet arrivals and cncrgy conscrvation is not achicvcd. Fuzzy cnhanccd Clustcr bascd Energy Efficient Multicast Protocol (EC“EEMP) is developed on the basis of three aspccts in *Our* research work. The first is multicast routing, which is based on the best route metric and average rcliability metric. Sccond, the elustcr is formed by the stability of nodes and thcir ability to take routes. The cluster network model uses three sets of nodes to estimate energy consumption: the sensor code, the cluster member, and the Cluster Head (CH). Thirdly, an improvement to the tuzzy model is made to get the best energy and the value of the lifetime of the network. Based on the simulation analysis, the proposed protocol outperforms the other schemes.

Keywords: CWSN, Encrgy consumption, Multicast routing, Fuzzy model

Introduction:

There are a t'ew applications related withRemote Sensor Organixation (WSN) to screen the occasionsat far area. It has numerous capabilities for advanced processing and high sensitivity thanks to its small sensor nodes. Although a large number of sensor nodes may be required to monitor real-time events, there are limitations, such as limited antenna gain, battery life, and bandwidth. Environmcntal monitoring, invcntory management, volcano tracking, wcathcr monitoring, and biomedical applications are the most common uses of WSN. It consists of three main components in cluster-based WSN: data monitoring, data aggregation, and data repOoing to CH. All cluster members (CMs) arc nianagcd by CH, who also makcs use of the available resources whenever necessary. In addition, CH is in charge of power-related data broadcasting, route selection, packet forwarding, and cluster member monitoring. One important factor in determining the sensor network's litespan is energy.

Paper ID: NCRDEAS-42

A Non-Intrusive Experiment to Examine the Visual Attention Data on Exposure to a Brand Using Eye Tracking

Prof. Suren Kumar Sahu1, Prof. Subrat Bhol2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: sksahu@rec.ac.in1, sbhol@rec.ac.in2

Abstract:

The purposc of this study is to comprehcnd how articulation affects sporting cvent sponsorship posters. To examine the visual attention data on exposure to the sponsor's brand while viewing an advertisement poster, an eye track ing experiment was carried out. Based on what they remembered seeing the poster, the respondents were asked to complete a questionnaire. The Mann-Whitney U tcst and ANOVA wci'c uscd to cxarninc the quantitative data as thc cyc tracking d‹ita. The convenicnce sampling method n as uscd to rciich respondents betwcen the ages of 20 and 42. The study determined that articulating a spoi‘ts poster is unlikely to have a significant impact on consumers' visual attention and brand aWareness; rather, the articulated text dra» s attention away from the brand. In addition, the articulation efr cfs of sports posters are influenced by the dcgrcc of congrucncc beta ecu the sponsoi’ and the cvcnt. Whcn congruence is low, it iiifluenccs visual attention, lending to a strongcr brand rccall. The existing literature on the topic of the ii ract ot’ articulation in sports sponsorship is lacking, but this sludy adds to ii.
To get better results, future research could take into account other k inds of articulation, like socio-financial and analogical, and employ new methods, like the Llectroencephalograni (EF-G) and Functional Magnetic Rcsonancc (FMR). Considering the inllucncc of ad-dcsign clcrncnts on iittention and media planning, the purposc of this study was to cmpirically tcst the effect of articulation on sports posters.

Keywords: Sports Sponsorship, Eyc Tracking, Articulation,Visual Attcntion, Brand An arcncss

Introduction:

The amount of goods and services traded online is constiintly grow ing. B2C c-coinmcrce revcnue iii Europe rose tron 279.3 billion EUR iii 2013 to fi3fi billion EUR in 2019 [I]. The C OVID-19 pandcrnic has cxaccrbatcd this trcnd by altcring the dcinograpliics of online custoincrs and the frc•ueiicy with which they make purch‹iscs [2]. An incrcasiiig number of older people are also making purchases online [2]. In any case, not just clients has exchanged their buying conduct for wcb based businccss, yct the i'ctail area has additionally answcrcd the rcv iscd circumstances. Because of the pandeinic-related limitations on admittance to shops, fixed retailers began selling their items on the eb or broadened their current web-based business [3], and large members of them plan to extend their web-based exercises from now on. Because of this, these businesses are directly competing with pure online retailers, who have years of experience with web presence and are always improving their online stores [4].

Paper ID: NCRDEAS-43

Using Cnns Pre-Trained For Audio Classification And Transfer Learning, Intelligent Fault Diagnosis Of Industrial Bearings

Prof. Santosh Kumar Naik1, Dr. Umasankar Das2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: sknaik@rec.ac.in1, umasankardas@rec.ac.in2

Abstract:

The preparation of Man-trade cOnsciousness calculations for machine finding frequently requires a gigantic measure of information, which is barely acccssiblc in industry. Since both tasks rcquire the extraction of features from spectrograms, this study demonstrates that pre-tr‹iincd convolutional networks for audio classification already have knowledge for classifying bearing vibrations. Whcn rolling clcmcnt bearings have localized detects, transfer learning is uscd to transf'er knowledge. This method gives a device to move the information implanted in brain networks pre-prepared for satisfying comparative ondeuakiiigs to symptomatic situations, essentially restricting how much information required for tweaking. Vibration samples were used to fine-tune the VClCiish model for the specific diagnostic task. The test bench for medium-sized bcarings in the Politecnico di Torino's mechanical engineering labs was used to cxtract data. There were three damage categories in the experiment. The findings demonstrate that vibration spcctrograins can ctTcctivcly classify the bearing statc using the modcl that has been prcviously trained with sound spectrograms. Through comparisons to the existing literature, the model's effectiveness is evaluated.

Keywords: sophisticatcd fault diagnosis; profound learning wove lcaming; bcarings that movc; rig for bearing tests; monitoring of condition

Introduction:

As part of putting predictive maintenance strategies into action, bearing sensoring is used to monitor rotating systems. The cost savings and increased production that these methods bring to industrial rotors motivate their implementation [1]. Bearing tñult diagnosis is a major concern of predictive maintenance and condition monitoring for two primary reasons. First, due to the intricate interaction bctween numcrous components, durability evaluations of rolling bearings arc impacted by significant uncertainties [2]. Bearings are also well-known to be important nodes for rctricving information about the mechanical systcin as a whole [3]. Onc of the most usctul methods for evaluating machine conditions in this setting is the analysis of vibration signals {4].

Paper ID: NCRDEAS-44

Rotational inertia's effect on the runner radial forces of a model pump- turbine passing through an S-shaped characteristic region

Prof. Santosh Kumar Naik1, Dr. Umasankar Das2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: sknaik@rec.ac.in1, umasankardas@rec.ac.in2

Abstract:

Pumped-storage power stations (PSPSs) must strictly maintain stability and safety in order to improvc the stability and satcty of tlic powcr grid. However, the S-shaped characteristics of pump turbines cause frequent instabilities in some PSPSs. While the working point goes through the S-formed area, concentrated outspread powers on the sprinter could cause shaft s ing of the turbine-generator unit. Using a one-dimensional and three-dimensional coupled computational fluid dynamics model, the mnaway transient scenarios of a pump-turbine in a PSPS model were simulated in this study. Additionally, the effect of the unit rotational inertia on the runner radial forces was examined. According to the findings, it is simpler to generate abrupt increases in runner radial forces whcn the pump-turbine is operating in the S-shapcd rcgion with a large rotational inertia than with a smaller onc. The explanation is that huge rotational idlcness gives more slow changes in rotational speed and release, giving sufficient opportunity to create temperamental and lopsidcd strcam dcsigns in the siphon turbine. This indicates that the running away duration is also necessary for the pump-turbine's transient instability in addition to the running away region in the characteristics plane. The finding is not the same as the conventional understandings and Ought to he thought about when chooses the rotational inactivity of a siphon turbine unit.

Conclusion:

Due to thcir bulk cncrgy storage, peak shaving, valley filling, frequency modulation, and phase modulation capabilities, pumpcd-storage power stations (PSPSs) serve as the regulator and stabilizer of the modern power grid. PSPSs need to be very safe and stable because of these flexible modes of operation and the frcqucnt switching between modes. Howcvcr, whcn it crosses the so-called S-shaped region in the four-quadrant characteristics plane [2], the reversible pump-turbine, which is the foundation of the majority of PSPSs, exhibits significant operational instabilities [1). NumerOus PSPS-related issues and accidents, including large hydraulic fhictuations, difficulties synchronizing with the grid, speed surges during turbine startup, power swings in low-head conditions, and draft-tube watcr column separation during emergency shutdown {3], have heen demonstrated to be caused by these characteristics.

Paper ID: NCRDEAS-45

Rotor estimator for efficient mesh deformation based on linear geometric algebra

Prof. Shashi Bhushan Panda1, Prof. Saraju Prasad Khadanga2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: sbpandal@rec.ac.in1, spk@rec.ac.in2

Abstract:

The creators tackle the issue of assessing the best turn adjusting two arrangements *OF* GOlnparing vectors (otherwise called Wahba's concern or point cloud enrollment). In addition to being robust to noise, accurate, and simpler than the majority *OF* other methods, the proposed method is one of the quickest methods that havc been reported in recent litcraturc. The tormulation of the problcm in Euclidean Gcometric Algebra servcs as the foundation for solvinb the linear cquations. The authors demonstrate its effectiveness in two ways: the as-inflexible as could be exr cted (ARAP) surface demonstrating and the more smooth turn improved ARAP network activity which is the main technique fit *FOR* twisting surface modes with nature of tetrahedral models. In robotics, automatcd construction, and gamcs, mesh deformation is an important technique. Tlic ARAP stratcgy alongside its superior variations, despite the fact that have been widely contcmplated, can in any case not be accomplished proficiently. The kernel problem is seen trom a new angle thanks to the rotor solution based on linear geometric algebra that this study proposes. This, on the other hand, not only enhances the actual performance of the three-dimensiOnal mesh dcformation, but it also otters a brand-new, computationally cfficicnt solution to thc Wahba problem and point cloud registration, both of which are closely connected to automation science and engineering.

Introduction:

The emerging requirements of highly dynamic three-dimensional (3D) computer animation, which has bccn cxtcnsivcly utilizcd in computcr ganics, visualization, computcr aided design, and intelligent manufacturing [1], led to the dcvelopment of the concept of mesh deformation. Another coniparative phrasing, tor example the surtñce straightening has likewise been broadly concentrated on in irechanized development [2]. In theory, these methods aim to wake specitic 3D models out of 2D meshes. The deformatiOn process takes a lOng time because complex 3D models havc a lot of surface details. Tlic as-inflexible as could really be cxpcctcd (ARAP, [3]) models such interaction by prescnting different ncarby unbending changes. This reveals that the mathematical model of ARAP is comparable to the classical problem of pOint-tO-QOllit matching, or aligning two vector sets that may have different numbers of points [4]. In robotics and aerospace engineering, this issue is known as the Wahba's problem [5] and point cloud rcgistration [6]. Numcrous robust and coinputationally cfficicnt algorithms have bccn proposed since Wahba's problem was proposed in 1965. Shutter, Markley, and Mortari were the first to develop solvers based on quaternions, rotation matrices.

Paper ID: NCRDEAS-46

Multilayer Perceptron Neural Network Design For Mental Task Recognition

Prof. Subhransu Sekhar Tripathy1, Prof. Srinibas Swain2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: sst@rec.ac.in1, sswain@rec.ac.in2

ABSTRACT:

A BCI (Rrain Computer Interface) is a direct connection between a computer system and the brain's neuronal activity. The BCI's primary objcctivc is to convert brain activity into computer commands. The brain's electrical signals can be recorded with an elcctroenccphalogram (EEG). It is extremely challenging to translate these measured electrical signals from the brain into commands. Signal Pre-processing, Feature Extraction, and C"lassitication are the conversion steps. The computer is controlled by the output of the previous steps. The classification of feamrcs is the main focus of this paper. It is based on tlic BCI Competition III 200fi datasct and uses a Multi Layer Perccption Ncural Nctwork (MLP) with back propagation training. Therc arc ten units in the input and hidden layers of the proposed neural network, with One unit in the output layer. When compared to other architectures of neural networks, this one has a very low Mean Square Error (MSE) of 0.342 afier being trained on the given dataset. With 100% training accuracy and 74' o testing accuracy, the proposcd method workcd.

Keywords: Multi-Layer Perception Neural Network, Brain-to-Computer Interface.

Conclusion:

Various applications in cognitive science and healthcare have made extensive use of EEG classification signals. Brain computcr intcrfacc (BCI) research, applications in ncurosciencc and ncuro cognition, and the classification of mental tasks arc all examplcs of this. Subject- dependent mental task classification is an efficient use ot' EEG to classify mental tasks while subjects are known and available. Additionally, subject-independent mental task classifications are being examined by researchers. Analyses of the effects of diseases on brain function suggest BCI ior paraplcgics bccausc EEG plays a crucial role in establishing interaction bctwccn various areas [1,2]. The BCI is based on computational inferences and recorded EEG signals from brain activity. Researchers have developed new frameworks for analyzing the changes in the brain functioning of patients during treatment [3] with the upcoming accurate EE€i data collection techniques. Along these lines,future examination *OF* BCIs for individuals with wellbeing arrangcincnts dcpcnds on EEG flags that assist thcm with using cxisting mental and engine capacities to dircct thc framework [4,5]. The patient would be able to control and evcntually operate support systems like wheelchairs and artificial limbs with this.

Paper ID: NCRDEAS-47

Enhancement Of High Data Rates In Wirelesscommunication Networks With The Use Of Mimo-Ofdm Technology

Dr. Prasant Kumar Pani1, Dr. Umasankar Das2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: pkpani@rec.ac.in1, umasankardas@rec.ac.in2

Abstract:

Wireless communication systems nccessitate an increase in speed, robustness, and spectral efficiency. A technique for encoding digital data on multiple carrier frequencies is orthogonal trcqucncy-division inultiplcxing (OFDM). Utilizing Multiple input and multiple output (MIMO), or multiple antennas iit thc transmitter and multiple antennas at the receiver, the spectral efficiency will increase, making OFDM a popular scheme for wideband digital, whether wireless or ovcr copper wircs. It is uscd in applications likc digital tclcvision and audio broadcasting, DSL broad band internet access, wireless networks, and 4Ci mobile communications. OFDM significantly reduces receiver complexity by transforming a frequency-selective channel intO a set of parallel fiat channels for broadband communications. In this paper, we applied Space-Time boded Various Info Different Result OFDM (STC MIMO-OFDM) idea for spreading the communicated images. In thc proposcd frameworks, a multi-layered variety, including time, recurrence, space and tweak varieties, can be utilized, bringing about better piece hlunder cxccution in AWGN channcl for with and without cushioning as wcll concerning with and without convolution coding.

KEYWORDS: OFDM, STC, MIMO, BER, PER, AWCiN.

Introduction:

The beginning of remote interchanges dates got back to the past due nineteenth 100 years, while M.G. Marconi did the spcarhcading compositions or setting up the csscntial a triumph radio hyperlink among a story station and a towing boat. Structures for wireless communication have improved dramatically since then. Over the past few decades, the number of people who subscribe to cellular services has significantly increased. Globally, the number of cell phone users has increased from a few thousand at the beginning of the 20th century to approximately 1.5 billion in 2004 [1]. With the capability to provide high-equality, high-specd data transfer between portable devices located anywhere in the world, wireless communications is an uncxpcctcdly cxpanding scgmcnt of the communications industry. Sincc thc l9fi0s, research has focuscd on the hypothesis that thc convergence of a numbcr of factors contributed to the quality improvement of the wireless conversation era. First, there is a growing demand for wireless connectivity.

Paper ID: NCRDEAS-48

Analysis of Alternative Techniques and Solutions to Boost Massive MIMO's Energy Efficiency

Kumari Shradha1, Kishore Chandra Panigrahy2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: ks@rec.ac.in1, kcpanigraphy@rec.ac.in2

Abstract:

The stOrniy development of high information rate applications prompts more energy utilization in remote organizations to fulfill administration quality. As a result, the limited availability of cnergy resources and the operation of environmentally friendly transmissions have received more attention in energy-efficient communications. There are numerous publications in this field that conccntratc on improving the energy efficiency of uplink-downlink transmission nctworks. Using linear prccoding schemes, altering the number of antennas per BS, formulating power control problems, antenna selection schemes, and taking into account cell-free (OF) Massive- MIMO arc all mcthods of accomplishing this. Dcspitc rcvicwing tlicsc methods, thcrc arc still numerous obstacles to their practical application. This review's strategies demonstrate EE's performance under the aforementioned schemes. The central commitment of this work is the relative investigation of how Gigantic MIMO EE perfOrms under the fOundation of various techniques and designs and the answers for not many issue definitions that influence the EE of organization frameworks.

Keywords: EE, Transmission from uplink to downlink, Control of pos er, Straight PrecOding, C F Massive MIMO.

Introduction:

Since Ciuglielmo Marconi first demonstrated radio's capacity to maintain constant contact with ships navigating the English Channel in 1597, the ability to communicate with individuals who wcrc moving had significantly advanccd. Thus, high level remote corrcspondcncc administrations and thcir strategies have been enthusiastically embraced by individuals around the world. Especially iii the beyond a decade, versatile correspondence industry has been elevated in greatness, charged by computerized and RF circuit creation upgrades and other shrinked advancements, making convenient radio hardware nanoscopic, prudent, and more crcdiblc. Whcn LTE was tirst introduced, roughly ten ycars ago, there were only a fcw tcns of megabits of capacity availablc to all sector users.

Paper ID: NCRDEAS-49

Fuzzy C-Means Clustering-Based Energy-Efficient Algorithm for Wireless Sensor Network

Prof. Umakanta Dash1, Prof.Swotismita Das2
1,2 Raajdhani Engineering College, Bhubaneswar, India
Email: udash@rec.ac.in1, sdas@rec.ac.in2

Abstract:

Energy efficiency is an essential consideration in wireless sensor networks. An energy-efficient routing algorithm has been proposed in this paper to extend the network's lifespan. The optimal number of static clusters has been created using fuzzy C-Means clustering in this study. To avoid excessive energy loss, redundant data generation and transmission are eliminated using the coherence concept. The purposc of gateways, both intra- and inter-cluster, is to prevent nodes from transmitting data over significant distances. For direct data transmissions, a novel strategy has bccn proposed to sclcct sturdy nodcs closc to the sink. Bascd on litctimc, avcragc energy consumption, and throughput, the proposed algorithm is compared to LEAC"H, MR-LEACH, MH-LEACH, and OCM-FCM. The findings confirm that the proposed algorithm performs significantly bcttcr than othcr algorithms and is better suited for usc in wireless sensor networks.

Keywords—WSN; clustcring; sleep-awakc; virtual grids; multi hop; routing

Introduction

Bccausc of touchy interest for remote corrcspondcncc during the last ten years, more cxtcnsivc range assets are required. Notwithstanding, range assets are restricted and are designated by a decent range task strategy. Mitola first proposed the idea of sensing the spectrum [1 to Address the issue of spectrum scarcity highlighted in the Federal Communication Commission report [2]. The objective is to detect recurrence band and tise that band, assuming that the authorized client called an essential client (PU) isn't utilizing it. In this manner, the loc‹ition execution in the range detecting is critical to the presentation of the two Discharge and the sensor organization. The location cxccution cannot cntirely scttlcd based on two mcasurcnients: the probability of dctection is the probability of a scnsor declaring that a PU is present, givcn that the spectrum is in fact occupied by the PU. The probability of false alarm is the probability of a sensor declaring that a PU is prcscnt when the spectrum is actually It is typically ncccssary for optimal detection performance that the probability of detection be maximized subject to the constraint of the probability of false alarm due to the fact that the detection prevents interference with the PU and a false alarm decreases the spectral efficiency.

Paper ID: NCRDEAS-50

A review on Text Generation using Natural language processing

Dr. Prasant Kumar Pani1, Dr. Umasankar Das2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: pkpani@rec.ac.in1, umasankardas@rec.ac.in2

Abstract:

The big challenge towards recently applications at natural language processing domain is text gcncration. Undcrstanding text also considcrcd as a challcngc, but its gcncration is morc difficult than analysis. Because of the internationality progression of clectronic interaction among pcople, the researches in text generation became a necessity. It is nice to enable websites, whatever its purpose, to response towards people via natural text. This articlc is a survcy on natural language text generation mechanisms for the period of last two decades and up today. It will be shown that the deep teaming mechanisms are the most commonly one. Also it will be shown that transtonring deep learning to be self-attention and knowledge understanding is the right way to be continued in domain of text generation.

Keyword: Natural language prOcessing; Human language generation; Text generation; Linguistic grammar tcchniqucs; Machinc and Dccp learning tcchniqucs.

Introduction:

The text does not have a solid idea. It is constantly evolving in tandem with the development of text distribution and publishing technologies. Texts were typically presented as printed matter in bound volumes, such as books or pamphlets, in the past. According to linguists David Barton and C‹irmen Lee, texts are now more likcly to be encountered in digital environments, whcrc matcrials arc bccoming "more fluid."Tcxt phonetics is a ticld of study whcrc messages arc treated as correspondence frameworks. The analysis examines stretches of language that go beyond a single sentence and places a special emphasis on context—information that is related to what is written and said. The sOcial relatiOnship between two speakers or correspondents, the setting in which communication takes placc, and nonverbal information like body language are all cxamplcs of context. This contextual information is used by linguists to dcscribc a text's "socio-cultural environment."

Paper ID: NCRDEAS-51

Design Theory Framework for Solar Desalination Processes in Mechanical Engineering: A Survey and Meta-Examination

Prof. Vanapalli Pavani1, Prof. Umesh Prasad Rath2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: vpavani@rec.ac.in1, urath@rec.ac.in2

Abstract:

The present investigation aims to evaluate the theoretical and practical evaluation of solar dcsalination-rclated scicntific publications. Within the framework of mechanical design theory, this analysis is proposed. The scientific publications of various specialties dealing with the design proccss of sOlar dcsalination wcrc analyzed using inductive and statistical tcchniqucs for this purpose. A trend that justities applying the study's findings to these kinds of devices of the analyzed approaches to the theory of mechanical design was obtained through the use of the aforementioned methods. Quantitative and analytical statistical analysis are used in the above evaluation. This answers questions about how mechanical design theory can be applied to this kind of solar desalination by connecting various fields of study that are currently used separ‹itely, as posed by various authors.

Keywords: Dcsalination, mcchanical design, meta-analysis, solar energy, functional modcling, design representation, and humidification-dehurnidification are some of the key terms

Introduction:

Due to the pressing need to address global water shortage issues and the depletion of conventional energy sources previously used to obtain water in various scenarios, interest in the application of renewable energies, such as solar energy, to produce fresh water has increased. In particular for isolated locations where a traditional energy supply is not readily accessible, the utilization of renewable energy sources in water desalination is of interest [1].

It is also possible to use solar thcrmal energy with a powcr cycle to gcncratc direct mechanical powcr. Thcrmal distillation technologies such as vapour comprcssion, multi stage flash, solar still, and multi effect distillation, as well as membrane processes such as reverse osmosis, forward osmosis etc.

Paper ID: NCRDEAS-52

Power Profile Analysis-Based Lightweight PUF-Based Gate Replacement Technique to Reduce Information Leakage

Prof. Subhransu Sekhar Tripathy1, Prof. Srinibas Swain2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: sst@rec.ac.in1, sswain@rec.ac.in2

Alistract:

Delivering a secure design and protecting the system frOm attackers and malicious modules known as Hardware Trojans is the most difficult task for designers of electronic devices. Even though the device is protected by a number of cryptographic safeguards, adversaries discover ncw ways to harm it. The Diiicrcntial Powcr Analysis (DPA) attack is a type of Side Channel Attack in which an attacker uses power leakagc analysis to extract the circuit's functionality. To beat this, a lightweight methodology is proposed in this paper utilizing, Wave Dynamic Differential Rationale (WDDL) strategy, without causing any extra asset cost and power. By limiting leakage pOwer, the primary goal *OF* WDDL is to keep a circuit's power consumption constant. An altcrnativc approach takcn by an adversary is to lcak the data by rcvcrsc cngineering it. Using a bit sequencer and a modified butterfly PUF-based randomizing architecture, the proposed work avoids this. In addition, a reworked version of the butterfly PUF is proposed in this paper. Numerous qualitative tests have demonstrated that this PUF is capable of preventing information leakage. The results of this work's validation on ISCA S S5 and ISC AS S9 benchmark circuits show that the diffcrcncc in lcakagc powcr is very small.

Kerwords: Equipment Security, PUF, TRNA, Logic.

Introduction:

In this dccadc, a major focus of research has bccn developing sccurcd hardware ior overcoming circuit vulnerabilities. The use of integrated circuits (lCs) has significantly increased in tandem with the steady advancement of technolOgy. An IC's design and manufacturing are becoming public due to its globalization [1] [2]. Many outsider organizations will privateer the genuine plan of IC and recreate something very similar with minimal expense. At various stages of the IC's production, attacks can be launched. Thcrc arc suggcstcd countcrmcasurcs to keep the IC safc from malware attacks. Watcrmarking, finger printing, obfuscation, and mctering are some of the proposed cOuntermeasures [3]. Even though these safeguards shield an IC from 3PIP attacks, there are still ways for an adversary to compromise the design's functionality. The side channel assaults comprise of various boundaries like pOwer spiilage, delay, temperature examination and timing investigation. The attackcr can extract the functionality or spots in the circuit whcrc the dclay is occurring using dclay analysis [4). Authors are affiliatcd with the Department of Electronics and Communication Engineering at the Amrita School of Engineering in Coimbatore. Amrita Vishwa attempted to inset malware that alters the circuit's functionality.

Paper ID: NCRDEAS-53

KFOA: K-mean Clustering, Firefly Based Data Rate Optimization, and ACO Routing for Congestion Management in WSN

Gagan Kumar Sahoo1, Durga Prasanna Mohanty2
1,2 Raajdhani Engineering College, Bhubaneswar, India
Email: gksahoo@rec.ac.in1, dpmohanty@rec.ac.in2

Abstract: —
Remote sensor organization (WSN) is collection of sensor hubs capable in ecological data detecting, refining it and communicating it to base station in sovereign way. The environmcnt is scnscd and monitorcd by the minute scnsors, which communicate with cach other. The limitations of proccssing power, communication range, and bandwidth are the primary obstacles. The r• inary obstacle in designing an energy-etticient netwOrk is the power sOurce of these sensOr nodes. Using a swarm intelligence approach, the proposed clustering and data transrnission algorithm aims to improve network performance. This method depends on K-mean bascd bunching, infomiation ratc advanccincnt utilizing firefly cnhanccmcnt calculation and Subterranean insect province improvementbased information sending. The KFOA is broken up into three sections: 1) Using the K-mean technique to cluster sensor nodes, optimizing data rates to control congestion, and using the shouest path for data transmission based on the ant colony optimixation (ACO) technique Two scenarios—with rate optimization and without rate optimization—arc used to analyzc the pcrtormancc. The first scenario includcs two operations: ACO-based routing and kernel clustcring. According to KFOA, the second scenario consists of three operations. Throughput, packet delivery ratio, energy dissipation, and residual energy analysis are used to assess performance. The re-enactment results show improvement in execution by utilizing with rate streamlining strategy.

Keywords — Clog control, WSN, rate reduction, clustering, routing

Introduction:

The wirclcss sensor nctwork is a collection of numcrous small, low-cost, and autonomous scnsor nodcs. The Tran receiver systcin, memory unit, and powcr supply arc all present in the nodcs. Bandwidth, processing spccd, storage capacity, battcry life, and othcr rcsourccs arc scarcc. The primary capability of thcsc scnsors is to hoard the information from climate and conimunicatc it to onc of swong basc station. Medical, industrial production units, vcliiclc wattic managcnicnt, structural monitoring, and habitat control arc just a fcw of the many uses for WSN. On the identification of occasion all sensors covering detecting scope of occasion spot start synchronous information transmissions towards sink hub. Data packets collide as a result of this proccss, and the network cxpcricnccs congcstion as a rcsult of buffcr overflow.

Paper ID: NCRDEAS-54

High Performance Computing Model for Real-Time Online Credit Card Fraudulent Identification Using ESVDS and SPSO

Kumari Shradha1, Kishore Chandra Panigrahy2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: ks@rec.ac.in1, kcpanigraphy@rec.ac.in2

Abstract:

Current advancements in the communication over networks and e-commerce section have led to considerable raise in the usage of credit cards for all type of transactiOns, iiiclUding those conductcd onlinc and even in traditional storcs. But duplicitous crcdit card communications have steadily increased, causing commercial institutions to lose a lot of money on yearly basis which reduces the turn-over. The creation of' ef'ficient fraud detection techniques is essential to minimize these losses; yet, doing so is difficult as it is extremely uneven in nature because of the majority of credit card datasets. Fuuhermore, utilizing traditional data mining algorithms for credit card traudulcnt rcvcaling is inciicctivc owing to its architecture, which entails a fixed mapping of variables from input sets with the output set of vectors. Using a Ensemblcs of Neural Network (NN) classifiers and hybridized iiifonration re-sampling strategy, this research presents a scheme that is both effective and efficient for identifying fraudulent use of credit cards. The ensemble classifier is produced using Enhanced Suppor Vector Data Sphere (ESVDS) and Stochastic Particle Swarm Optimization (SPSO) model as the basic lcamcr in thc cat boosting strategy. By combining the SMOTE-Synthetic Minority Oversampling Technique with the Edited Nearest Neighbor (ENN) technique, the hybrid re-sampling is accomplished. Proposed model overtakes other algorithms in experiments using data trom Brazilian banks and UCSD- FICO.

Keywords: Catboost; credit card; data imbalance; ensemble teaming; risk analysis; ieta-heuristics

Introduction:

Machine learning is currently used extensively in ponfolio management, trading, risk analysis, fraud prevention, and detection in the banking and financial sectors. Machine learning is used to create Chatbots, aoificial intelligence software that can interact with customers and answer their qucstions, for instance, in the financial industry. In exchanging, Choice Exchanging Emotionally supportive networks or Algorithmic Exchanging, is utilized topursue very quick choiccs [4]. In addition, traud prevention is one ot' the primary applications of machine learning in the banking sector.

Paper ID: NCRDEAS-55

A Memristor-based Sub-threshold SRAM Cell with Low Leakage

Dr. Prasant Kumar Pani1, Dr. Umasankar Das2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: pkpani@rec.ac.in1, umasankardas@rec.ac.in2

Abstract:

With the idea or sub-threshold opcration, this work aims to improvc total powcr dissipation, leakage currents, and stability without affecting the logic statc of a SRAM cell. However, whilc sub-threshold SRAM proves to be advantageous, it tails to watch the readability and writability of a standard 6T SRAM cell. In this paper, we looked into a non-volatile 6T2M sub-threshold SRAM cell with six transistors and two rnemristors that Operates at a lower supply voltage of VDD-0.3V. The mcniristor is uscd to storc data even during power failures and rcstorcs previous data with successful read and write operations, overcoming the problem. In addition, a new configuration ot the iioii-volatile tiT2M (6 Transistors & 2 Meinristors) subthreshold SRAM cell is proposed in this paper.This new configuration results in improved power, stability, and leakage current behavior, with read and write power increasing by 40% and 90^{O} , respectively, whcn coinparcd to the conventional I T2M SRAM cell. Thc proposed 6T2M SRAM cell offers great security of RSNM=65mV and WSNM=93mV which is significantly better at low voltagc when contrasted with customary fundamental 6T SRAM cell, and further developed spillage current of 4.92nA is accomplished as looked at.

Keywords: Six terabit SRAM cell, rnernristor, dissipation of power, peruse and compose activity, a current leak, stability, non-unstable circuit.

INTRODUCTION:

L.Chua theoretically dcmonstratcd the introduction EMIRSTOR in 1971[1] as the fourth passivc circuit element, after the resistor, capacitor, and inductor. It was physically manufacturcd in 2008 using a TIO2 oanoscale device in HP labs [2]. Memristor is a strong candidate for future low- powcr applications because of its non-volatilc propcrtics, good scalability, low powcr consumption, high package density, and most importantly, its ability to integrate with existing CMOS technologies[3]. One of the most significant aspects of the most recent studies on battery- operated portable devices [3] is power-conscious design methodology. Because unwanted power dissipation raises the temperature of the device, increasing the likelihood of failure and reducing the lifetime of circuitry, mobilc applications require and dcmand low power consumption and leakage current as technology advances [4]. Thusly, scaling of supply voltages saves dynamic as well as spillage powcr. It is ditticult to rcducc SRAM cell powcr consuniptiOn for low-powcr applications.

Paper ID: NCRDEAS-56

Recommended Wroclaw Locations with Studio and Home Conditions for Radio

Prof. Ranjan Kumar Samantaray1, Prof. Rajib Lochan Paramguru2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: rks@rec.ac.in1, rlp@rec.ac.in2

Abstract:

In October 201 S, Wroclaw's agglomcration reccivcd coverage from local digital radio. Numcrous tests, including qualitative ones involving speech and music, were needed to carry out this project. This paper presents the aitereffects of abstract tests in light of the assessment of discourse nature of signs recorded at different places in Wroclaw. The measurements were carried out in listcncrs' homes undcr normal acoustic conditions and in accordance with the recommendations of the International Telecommunication Union. The rating was made for male and t'emale voices. The main end is that tor discourse signal appraisal in significance of the quality the test conditions don't impact the got results. The experiment also demonstrated that the receiving location of the DAB+ signal in the Single-Frequency NetwOfk has no effect on the pcrccivcd quality of tlic voicc.

Keywords: Digital Audio Broadcasting, talk quality, assessmcnt of equality. Introduction:

On October 1, 2013, Poland bcgan receiving regular broadcasts from Digital Audio Broadcasting (DAB +). As indicated by the suggestions of the European Telecom Association (EBU), advanced radio inclusion ought to covcr both cnorinous regions (the whole district/country) and more modest, for instance mctropolitan agglomerations [1,2]. On January 19, 2018, a neighborhood Touch + multiplex was sent off in Wroclaw, created as a component of a task did by thc Wroclaw Collegc ot Science and Innovation, the Corrcspondcnccs Organization in Wroclaw and C lean Radio Wroclaw. In the DAB + digital radio system, the sol ution was implemented as a Single Frequency Network (SFN). The much better utilization of spectral space is the primary benefit of this kind *OF* network. Using the gap tilting technique, a network of multiple transmitters operating at the same frequency, transmitting the same signals, and mceting the rclevant synchronization requiremcnts can cover a much larger area and minimize total radiated power [3].

Paper ID: NCRDEAS-57

A Review on Pothole detection using Image Processing

Dr. Prasant Kumar Pani1, Prof. Sagram Keshari Sahoo2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: pkpani@rec.ac.in1, sksahoo@rec.ac.in2

Abstract:

Accidents caused by uneven road conditions can harm drivers, passengers, and pedestrians. Monitoring the statc of the roads is csscntial to creating a nctwork of safc and cnjoyablc mobility. Road accidents are affected by a number of variables, including speeding, reckless driving, and poor road conditions. Accidents that happen through no fault of the motorist happen rather frequently. One ot' the main contributing causes to these incidents is bad road conditiOns. Due to the rising number ot potholes, accident rates are rising year after year. Because road maintenance is typically performed manually, it takes a long time, involvcs effort, and is prone to human mistake. Since potholes are one of the main cause of accidents, it is crucial tO identify and catcgorisc them using image proccssing techniques. On roads and highways, potholcs arc areas of uneven pavement that are caused by continual automobile traffic as well as environmental factors. A system for measuring pOthole size and detecting them is suggested. To tind potholes, the suggcstcd solution cinploys a dccp learning- bascd YOLO (You Only Look Once) algorithm. By utilising image processing, the system offers a practical cost-effective sol ution for pothole detection on the road and notifies the responsible party for road maintenance. A report is also generated capturing the number ot'potholes and evaluating its area and depth. The method wakes use of a specially created dataset that includes pictures of both dry and wct potholes of varying sizes and shapcs.

Keywords: YOLO, Dccp Lcarning, Imagc Proccssing, Pothole Dctcction

Introduction:

A pothole, also known as a kettle or chuckhole in some parts Of the Western United States, is a type of disruption in the surface of a roadway caused by a pOnion of the road material breaking away to form a hole. MOSt potholes are shaped because of an exhaustion of the street surface. Crocodile cracking is a pattern of interlocking fatigue fractures as they develop. Between fatigue cracks, picces of pavcmcnt ‹me worked loose and may eventually be piillcd off the surface by continued wheel loads, resulting in a pothole. Low temperatures make it worse for potholes to form bccausc watcr cxpands whcn it to iorm ice, putting more stress on a road or pa ement that is already cracked.

Paper ID: NCRDEAS-58

AH Method: a Novel Routine for Examining the Optimum in the Neighborhood of a Genetic Algorithm

Prof. Santosh Kumar Naik1, Dr. Umasankar Das2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: sknaik@rec.ac.in1, umasankardas@rec.ac.in2

Abstract ~~The~~ paper presents an original heuristic technique (further called the AH Strategy) to rcscarch capability shapc in the immediate area ot thc tracked down ideal arrangement. The study is led utilizing just the space testing g‹ithered during the advancemcnt interaction with a developmental calculation. For this reason the limited model of point-set is thought of. ThG factual examination of the testing quality in light of the inclusion of the places being referred to over the whole fascination locale is taken advantage of. The resistance limits of the not entirely settled for the clicnt dctermincd incrcincnt of the goal capability cstccin over the viewed as lcast. The introduced experiment information demonstrate that the proposed approach is cquivalent to other ideal neighborhood assessment calculations. Additionally, the AH Technique demands observably more limited computational investment than its partners. This is accomplished by a rehashed, second utilization of focuses from enhancement without extra goal capability calls, as well as huge vault size dccrcasc during pre-proccssing.

Keywords— heuristics, developmental calculations, hereditary calculations, vulnerability assessment.

Introduction-Transform‹itive calculations are advanced worldwide improvemcnt mcthods. A wide range of ways to deal with this subject have been planned since the conventiOnal proGedure of simultaneous looking ior the ideal arrangcmcnt was initially proposed by Holland [1].
Different mcthods include blcnds of room investigation and double-dealing of rccently uncovered fascination areas. The inquiry interaction is perfonred by handling a bunch of up- and- comer arrangcincnts, called a populace. During this activity an irnincnsc numbcr of goal capability values are determined for various places in the hunt space.

Paper ID: NCRDEAS-59

Rapidly developing ladder: A schematic for a programmable logic controller used in a technological processframework as a contact stepping stool.

Gagan Kumar Sahoo1, Durga Prasanna Mohanty2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: gksahoo@rec.ac.in1, dpmohanty@rec.ac.in2

Abstract:

The article provides a developed method as well as general principles for the creation *OF* ladder diagrams, which are frequently utilized in programmable logic controller (PLC) systems. Stepping stool charts are made for consecutive control frameworks of mechanical cycles, which arc poorayed by an association design, and timc graphs of the chicf components' activity. The leader components are twofold acting pncumatic or water-powered actuators constrained by bistableelectro-valves. An approach to sequential system design that makes it possible to construct an electro-pneumatic ladder system is presented. There are two sections to the ladder diagram. One is in charge of controlling the val› e coils, and the other is to charge of putting the memory block into action. The signals that arc dcseribcd on tlic boundaries of the graph division are the ones that control the transition to the next state. Festo's computcr-aidcd program FluidSiir was utilized for control system synthesis and verification.

Keywords- Synthesis, validation, sequential systems, diagrams of ladders

Introduction:

In device design, the analysis and synthesis of the device's schematic diagram is a crucial issue. In the combination ot' computerized [1,2,3] and simple [4,5,ti,7] electrical frameworks, a numerical depiction is required, which is frequently convoluted. A method for the synthesis of sequential circuits has been prescnted to meet dcsigners' expectations regarding the minimization of mathematical apparatus iii circuit analysis. The synthesis of a sequential system with the usc of logical elements is prcscntcd as a continuation of the research problcms announced in the article [S]. The aoicle providcs an example of a sclected sequcnce of exccutive components of a technological process as a basis for the quick design of a ladder diagram for a PLC controller. The connection pattern and cyclogram, which display the statcs of the actuators, are shown in the automatic machine's work cycle. The automaton graph was constructed on their foundation.

Paper ID: NCRDEAS-60

A Review on Know Your Customer (KYC) System Using Blockchain Technology

Prof. Ranjan Kumar Samantaray1, Prof. Rajib Lochan Paramguru2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: rks@rec.ac.in1, rlp@rec.ac.in2

Abstract:

Know Yotir Customer (KYC) is a crucial process that banks and other financial institutions must undeuake before providing any financial services. This involves collecting and recording customcr inforinatiOn during the onboarding process, and ensuring that this information is kept up-to-datc. KYC is typically intcgrated into account opening forms and is m‹indatory for customers to provide accurate information. Almost all financial institutions involve getting KYC information from their prospective customers, from banks to insurance companies. The primary objective of this process is to identify and prevent fraudulent acti› ities like money laundering, identity theft, terrorism financing, etc. Howcvcr, the cost of managing KYC per customer can be substantial due to a lack of transparency, mistrust, and data duplication. Blockchain tcchnology provides a solution to establish trust and transparency by creating a self-sovereign and Decentralized Know Your Customer (DKYC) model. This model enhances customer privacy through consent-based access, features regulator governance, and helps banks to use trusted and accurate customcr data while reducing custonicr acquisition costs.

Keywords: Blockchain, Know-Your-CuStOmer, Decentralized

Introduction:

Financial markct innovation is likely to come primarily from blockchain technology. It considers the making of unchanging records of exchanges open by all members in an organization. A blockcliain database is madc up of several blocks that arc "chaincd" togcthcr by rcfcrring to the previous block in each block. One or wore transactions, which are basically changes in the listed owner of assets, are recorded in each block. Through a consensus mechanism, members of the blockchain network confirm that transactions are valid betore adding new blocks to the existing chain. Blockchain technology can be used to create a network that is "fully peer to peer, with no trusted third party," such as a governmcnt agency or financial institution. Although all of thesc applications are still in the early stages of development, many of their look promising *tO‹* the tinancial markets. The bitcoin cnvironnient addrcsscs the biggcst cxccution or blockchain innovation to datc.2 Interest in the innovation keeps on filling in the monetary innovation and more extensive monetary administrations networks.

Paper ID: NCRDEAS-61

C-shape Slotted MSPA Analysis for 5G Sub Band Applications on Three Different Substrates

Dr. Prasant Kumar Pani1, Dr. Umasankar Das2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: pkpani@rec.ac.in1, umasankardas@rec.ac.in2

Abstract: A compact planar square patch microstrip inultiband antenna on three distinct substrates is the subject of a proposed comparative analysis. The square radiating pan of the proposed design has an ctchcd C-shaped slot, and a microstrip feed linc powers thc antenna. For simulation analysis, RT Duroid (r 2. 2), Taconic (r 3. 2), and FR4 (r 4. 4) substrates ‹me utilized. The progression of current is altered by the C-molded space making the recieving wire to resound at 3/4 and 6 groups for RT Duroid/Taconic and FR4 substrates individually reasonable for 5G sub GHz applications. The antenna has a small size of 32 x 32 x 1. 6 mrn3 and a return loss, S11, that is lcss than -10 dB at all resonating frcqucncics on all three substrates. The examination has bcen finished by thinking about the S 11 (Return misfortunc <-10 dB), Directivity, Relieving wire Gain, VSWR and surface current appropriation. The parameters of various substrate materials are compared in Table II.

Keywords —C-shape, Duroid, RT, The Taconic FR4

Introduction:

The usc of small-ccll and Intcrnct of Things dcvices has increased, which has led to more traffic. 5Ci technology has replaced the current network, requiring more capacity, faster data rates, and extremely low latency. 5G is a cutting edge versatile correspondence innovation that gives more nOteworthy limit and information speeds than the past age Long haul Development innovation (LTE) [1]. The rapid advancement of autonomous vehicle technology has sparked a lot of interest in vehiclc-to-everything (V2X) communication systcms. As pan of the connected car system, there has been a significant increase iii the demand for automobile antennas for the LTE and 5G communication bands [2]. Various mcthodologics for accomplishing multiband radio wire setup have becn proposed in thc writing, including openings [3-7], fractals [8], clusters [S), etc. Different substrate materials have been considered to examine the impact of diclcctric niatcrial on rccciving wire cxccution.

Paper ID: NCRDEAS-62

2x2 Micro Strip Circular Patch Antenna Array at 28 GHz for 5G Mobile Station Application: Design and Simulation

Anup Kumar Nanda1, Anshuman Bhuyan2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: aknanda@rec.ac.in1, abhuyan@rec.ac.in2

Abstract:

This papcr proposes the design and simulation of 22 circular p‹itch antcnna ‹irray working at 25 GHz by using four inset feed micro strip circular patch antennas to achieve beam forming with directivity around l3dB which is required to overcome part of high path loss challenge for high data rate rum-5G mobile station application. Four element 2x2 array consists of two l x2 circular patch antenna arrays based on powcr divider and quarter wavclcngth transition lincs as a matching circuit. The dcsigned antenna array is simulated on RT/duroid 5880 dielcctric substratc with properties of 0.5mm thickness, dielectric constant er=2.2, and tangent loss of 0.0009 by using Computer System Technology (CST) software. The performances in terms of return loss, 3D—radiation pattern is evaluated at 2S CiHz frequency band. The design also includes the possibility of inseuing four identical 2x2 antenna arrays at four edges of mobile station substrate to achicvc broad space covcragc by stccring the beams of the mobile station arrays.

Keywords: patch; 5G; rcmm loss; dielectric; array; dividcr; substratc; dircctivity; bandwidth

Introduction- Thc recent ycars, a huge numbcr of smart dcviccs and sensors providing big amount of information is increasing rapidly due to the presence of sevcral Information Technology fields (IT) such as Artificial Intelligence (AI), and Internet of Thing (IoT). Reside this the numbcr of smart phones, tablcts, etc is incrcasing also to support existing scrviccs as internet, music, gaming with high quality. This tends to huge data content hence high data rate information (> l0GBit/s) is required which do not match as well today's access wireless rnObile networks (3G,4G mobile system). The new generation 10 GBit/s—mm-5G mobile communication system is proposed to support such high data services. To transfer such high data rate through 5€1 system the RF frequcncy band must be higher at least three times than the data rate, thercfore the RF frequency band This work was supported by GigaNet ISP Company.

Paper ID: NCRDEAS-63

Agricultural Use of Renewable Energy Sources: An ln-Depth Look at the Past Three Years

Prof. Rajeswari Chhualsingh1, Prof. Premananda Sahu2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: rc@rec.ac.in1, psahu@rec.ac.in2

Abstract:

The use Of renewable energy as a means of supplying the agricultural sector with energy is growing. Concern for the environment is on the rise right now. Because of this, technology has improved how energy is used in relation to natural resOurces and how readily available they are for all productive industries, including agriculture. The primary goal of this work is to conduct bibliometric analysis and examinc global scientific advancements in renewablc encrgy and agriculture over the past three years (2014-2017). This study aims to provide a summary of the past thrcc years' research on the subject in ordcr to assist the international scientific community, particularly in fostering collaboration among authors, institutions, and nations. The five main clusters of this study were identified through a keyword analysis that utilized community dctcction. The majority or the kcyword analysis was devoted to the following subjects: sustainable power advancements in agribusiness, bioenergy, reasonable farming, biomass energy, and the ecological effect of hooiculture. India, China, the United States, Italy. the United Kingdom, Poland, Indonesia, Genrany, the Russian Federation, and Spain are the primary nations found to be conducting research on renewable energy and agriculture.

Keywords: sustainable power; agriculture; Scopus; bibliometric; sustainable progress

Introduction:

The UN's 2030 Agcnda for Sustainable Dcvclopmcnt was approved in 2015. To accomplish a natural changc in outlook, the 2030 Plan distinguished energy maintainability as a critical component for guaranteeing the suitability of the worldwide monetary framework. The 17 Sustainable Dcvclopmcnt Goals [I] arc the UN's goals. Objcctivc seven alludcs to cncrgy manageability, which plans to "guarantee admittance to reasonable, secure, economical and present day energy".

Paper ID: NCRDEAS-64

IoT clusteri□g protocols for agricultural precision

Dr. Prasant Kumar Pani1, Prof. Sagram Keshari Sahoo2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: pkpani@rec.ac.in1, sksahoo@rec.ac.in2

Abstract:

The Internet of Things (IoT) has made it easier to use Wireless Sensor Network (WSN) technologies in new applications. IoT can play a significant role in enhancing production, quality, and output yield in agricultural monitoring. Many agricultural activities will sec significant improvcmcnts as a result of the use of WSN and data mining methods. The management of the ainOunt of water in planted fields is one such activity. Additionally, WSN has evolved into a were dynamic area of precision farming in recent years. The use of energy and increasing the life of the nodes are the most significant issues in the development of WSN. The clustcring protocols based on soft computing that arc utilizcd in the agricultural scctor to extend the lifespan of WSNs are the subject of a system‹itic analysis in this paper. Different soft computing methods are used for classificatiOn: genetic algorithm, tuzzy logic, swarm intelligence, and neural networks The survey will then present a comparison of soft computing techniques, focusing on their objectives and advantages and disadvantages. The findings of this survey enable the rcscarchcrs to select the appropriatc soft computing method for WSN-based precision agriculture clustering protocols.

Keywords: Intcrnct of Things (IoT), Wirclcss Sensor Nctwork (WSN), Swann Intclligcnce, Clenetic Algorithm, Precision Farming, Neural Network, Soft Computing

Introduction

Rcmote sensor organization (WSN) advancements have quickly evolved throughout the long term. Motes or sensor nodes are pervasive devices that can be used to monitor ecological phcnomcna ovcr a largc area. Numcrous sensors, processors, and radio trcqucncy (RF) modulcs make up battery-powered WSNs. The sensor hubs or bits can impart remotely through a correspondence interface and forward their information to a base station or facilitator hub by speaking with a passage. WSNs are able to monitor a wide range of environments in order to obtain precise information from the field because the communication between sensor nodes is dcpendent on the mcrging of various sensors, which r‹inge from simple (such as humidity, pressure, and temperature) to complex (such as localization, tracking, micro-radars, and images) sensors [1]. As a result, sensor nodcs' capacities tor sensing, storing, proccssing, and communicating havc continuously incrcased [2].

Paper ID: NCRDEAS-65

Overflow Based Non-Straight Feed forward Brain Organizations for Bi-Directional Memorv

Prof. Santosh Kumar Naik1, Dr. Umasankar Das2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: sknaik@rec.ac.in1, umasankardas@rec.ac.in2

Abstract:

In this day and age, proficient calculatiOn is the way to oulcoire in many fields. Pattern association influences learning and memory, among other aspects of life. Neural networks successfully demonstrated bidirectional associative memory in complex dynamics. However, thcrc arc performance issucs n itli these ncural nctworks, such as computational timc. The background of this study was analyzed using a matrix of burying sizes and a random bipolar input and output pattern. Nonlinear memory association is thought to be the most practical approach for dealing with the difficulties presented by bidirectional associatii e memory. A non- linear feed forward cascade-based neural network that performs pattern association in to passes and rcscmblcs a Baycsian algorithm is the subject of this inscstigation. An irrcgular cxamplc and English lctters in ordcr with various cx‹imples havc becn utilizcd to approvc the conscuences of this irethodolOgy. The study looked al BAM's equivalent performance, pattern association, and stability using the results of the experiments.

Keywords: Cascade feed Forward Neural Network , Bidirectional Associative Memory ,Memory Association , Pattern Recognition

Introduction:

The eiitorhinal conex (lG), dentate gyrus (DG), cornuamrnonis (CA l, CA2, and CA 3), and subiculurn (SUB) complcx arc all components of the cxtcndcd hippocampal formation (CIF). Convcntional cheinica1 tracking was used in a lot of the grountlbreiiking research on hippocampal connectivity [1—5]. Traditionally, the HF has been desci‘ibed as having a unidireclional, feedforward circuit organization [6 -S). According to the trisynaptic pathway model, the CA l sends excitatory information from the hippocampus to the SUR, which has traditionally been thought of as the sccond major output stage of 1IF [S—11]. Noncanonical HF circuits have bccn disco ered using novcl viral genctic circuit mapping methods, dcspite the wcll-established canonical HF conneciively.

Paper ID: NCRDEAS-66

Utilizing an integrated particle swarm optimizer, weight minimization of truss structures with sizing and layout variables

Kaushik Mishra1, Kamalakanta Padhi2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: kmishra@rec.ac.in1, kpadhi@rec.ac.in2

Abstract

The integrated pauicle swarm optimizer (iPSO) algorithm's effectiveness in optimizing the layout and size of truss structures is the subject of this invcstigation. Utilizing both the improved fly-back approach to deal with optimization constraints and the concept of weighted particlcs, the iPSO improves the standard PSO algorithlTl. A variety *OF* well-known truss structure weight minimization problems, including mixed design search spaces (with both discrete and continuous variables) under a variety of constraints (such as nodal displacements, element stresses, and buckling criterion), arc uscd to evaluate the cttcctivcncss of the most recent algorithm. Whcn it comes to solving problems involving both layout and sizc optimization, the outcomes demonstrate that the proposed method is appropriate.

Keys ords: Combined sizing, particle swam optimizer, and structural optimization

Introduction:

One of the most signific‹int areas of structural optimization is the optimiz‹ition of truss structurcs [l,2,3,4,5,6,7,S]. The structure layout and topology are fixed, but the cross-sectional areas of various elements are included as design variables in these problems. To locate the global optimal sol ution that satisfies optimization constraints, efficient optimization algorithms are required. The sequential unconstraincd minimization technique [9], the feasible directions method [10,11], the moving ‹isymptotes method [12], and sequenti‹il quadratic programming [13] are a few examples of mathematical programming techniques that exhibit test convergence and high accuracy. However, specific problem-dependent properties like differentiability and convexity are exploited by design. They may not be applicable to truss optimization issues because of these [5]

Paper ID: NCRDEAS-67

Utilizing the Block Tridiagonal Matrix Method for the Integration of Compressive Sensing and Clustering in WSN

Gagan Kumar Sahoo1, Durga Prasanna Mohanty2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: gksahoo@rec.ac.in1, dpmohanty@rec.ac.in2

Alistract:

Environmental monitoring is the most common usc of wircless sensor nctworks (W SNs), but their operation typically takes a lOng time. HOwever, the scale of each WSN application is constrained by the inherent restriction of energy. This article demonstrates the framework for integrating compressive sensing and blocks tri-diagonal matrices (BDMs) for clustering in WSNs. Thcsc BDMs can be uscd as matrices of measurement by combining data prcdiction with retrieval to achieve data processing prccision and effectivencss simultaneously in clustered WSNs. Based on the theoretical analysis; this can be designed to be used in a number of algorithms. On the basis of cluster in WSNs for environmental monitoring, the proposed framework provides real-world data demonstrations that can be used tO Obtain simulation results for a cost-cffcctivc solution.

Index Terms: Data prediction, environmental monitoring, compressive sensing, matrix-bascd compression, and wireless sensor networks (W SNs)

Introduction

Multi-hop routing tcchniqucs play a significant role in the implementation of conventional data transmission strategies. On the routing tree, the upstream nodes transmit data hop by hop from each sensor code to the receiver end. During the transmission mode, which necessitates the transmission of information from other distant nodes in addition to the detection data, all sensor nodes remain closer to the receiver, resulting in higher loads for the closer nodes. Thccxamination has bccn done for somc structures for detecting. Structured Random Matrix (SRM) is one of the methods that provides a practic‹il method for sampling bctween them. Comparing the performance of completely sensing with random sensing matrices, this methOd has the advantage of increasing sparsity while simultaneously reducing complexity and speeding computation. Utilizing Kronecker compressed sensing (KCS)[5), the method for exploiting the rcccntly discovcrcd corrclation pattcrns typically entails combining the possibility of distinct bases of sacrifice from each dimension of the signiil within the matrix of a single basis.

Paper ID: NCRDEAS-68

Optimized and Secure Data Aggregation Protocol for Wireless Sensor Network

Julee Margarette Suthi 1, Guru Prasad Dash 2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: jmsuthi@rec.ac.in1, gpdash@rec.ac.in2

Abstract:

It is a challenge for the community of researchers .Additionally, data transmission security is a significant constraint that makes WSN research increasingly appealing. One method for conserving energy is data aggregation, which reduces computing overhead by eliminating redundant data. However, some security breaches cause the data aggregation readings to be false, rcndcring the outcomes inaccurate. Additionally, thcrc is a tradcoft bctwccn WSN cncrgy consumption and sccurity. Higher levels of security also result in an incrcase in energy consumption (more encryption and decryption use more energy), and attempting to conserve energy means compromising security in some way. An energy-efficient and secure data aggregation protocol that does not compromise security is proposed in this paper. Encoding the information just at lcai hubs, utilization of protection hoinoniorphism method and cutting the information guarantecs secure and exact information collection. Our protocol is more securc and energy efficient than the EESSDA protocol, as demonstrated by our theoretical analysis and simulation.

Keywords: Security, Sccure Data Aggregation Protocol, WSN, OSDAP, and EESSDA data aggregation

Conclusion:

Remote sensor networks are generally made out of hundreds or thousands ot' modest, low-fueled dctccting gadgets with rcstrictcd nicmory, computational, and corrcspondcncc assets [1,2]. In both military ‹ind civilian applications, battlefield surveillance, target tracking, environmental and health care monitoring, wildfire detection, and traffic regulation are all possible, potentially low-cost solutions offcrcd by thcsc networks.

Paper ID: NCRDEAS-69

Forecast of Coronary illness Utilizing Mixture Straight Relapse

Kumari Shradha1, Kishore Chandra Panigrahy2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: ks@rec.ac.in1, kcpanigraphy@rec.ac.in2

Abstract:

Dynamic Coronary illness (HD) is pcrhaps of tlic most wcll-known intéction, and early dctermination of this sickness is an indispensable movement for some mcdical services suppliers to stay away from and save lives *FOR* their patients. Coronary illness records to be the main source of death across the globe. By using machine learning techniques, hidden information in the health sector can help make early decisiOns by predicting existing diseases like coronary hean discasc. The two-phase iinplemcntation of the proposed Hybrid Linear Rcgrcssion Modcl (HLRM). The first stcp is to preprocess the data; KNN and simple mean imput‹ition are used to imput missing values, and then Principal Component Analysis is used to find the most important attributes that contribute to the diseases catise. Second, the linear regression technique known as stochastic gradient descent is utilized to record the probability values of the dependent variables in ordcr to ascertain tlic connection that cxists between the indcpcndcnt and dcpcndcnt variables. The proposed model has been observed to have an overall prediction accuracy of 89.13 perccnt. The study's findings will serve as a reference tor medical professionals and as a plattonr tor academic research.

Keywords: Machine iearning; heart disease, association, Linear Regression Mode(, principal component analysis, Decision tree

Introduction

The leading cause of death worldwide, cardio› ascular disease (CVD) claims nearly 18 million livcs annually [1]. Athcrosclcrosis, which causes coronary artcry discasc (CAD), peripheral arterial discase (PAD), and cerebrovascular diseasc (CeVD), is the focus of this paper. CAD is the most common of these [2]. Plaque builds up in the heart's vital blood vessels in people who have CAD. Myocardial infarction (MI) and other symptoms are brought on by this decreased blood flow. Within months or years *OF* a patient's diagnosis of cardiovascular disease (CVD), the majority of fatal cardiovascular events, such as heart attack or strokc, occur 3]. In fact, after their initi‹il presentation, many paticnts experience scvere complications or require repeated interventions (recurrent events). The occasions represent an incredible gamble to the patient, and night be a monetary weight to society.

Paper ID: NCRDEAS-70

Reconstruction probability-based anomaly detection with variational auto- encoders

Dr. Prasant Kumar Pani1, Dr. Umasankar Das2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: pkpani@rec.ac.in1, umasankardas@rec.ac.in2

Abstract:

Anomaly detection is tlic proccss of classifying cvcnts or data points in a dataset that wcrc not cxpected. In a wide range of fields, it has been demonstrated that variable auto-cncoders (VAEs) can deal with challenging issues. Based on the VAE reconstruction probability, we propose a method for finding anomalies. The proposed strategy trains VAEs on three different datasets. Because of the theoretical background and the inclusion of the idea of variability, the rcconstruction probability is a much morc principled and realistic anomaly score than the reconstruction error utilized by auto-encodcrs and other data compression tcchniques. The paper compares and contrasts various anomaly detection techniques with the most recent deep learning models. In an unsupervised setting, variational auto-encoders are trained on three distinct datasets tO classify anomalies based on recoiistructiOn probability. In addition, the techniques for anomaly dctcction arc the subject of this papcr's in-depth invcstigation. In order to dctcrminc the undcrlying cause of the anomalies, the data are rcconstructed using the gcnerativc characteristics of the VAE.

Keywords: Variational auto-encoders (VAEs), anomaly detection (AD), deep learning (DL), KDD99, ClFAR 10, and MNIST

Introduction:

An important part of machine learning is anomaly detection, which is a technique for finding anomalies and illogical data mining. Because the speed of manual data prOcessing has been significantly slower than that of computers, especially in the era of big data, tastcr detection of abnormal data is an important task in today's world [1, 2]. In entcrprises, the oddity location of mechanical gadgets is significant. A more immediate and precise method of anomaly detection contributes to accident prevention, enhanced reliability, and increased production efficiency [3, 4].One-Class Support Vector Machines (OC-SVMs), Principal Component Analysis (PCA), and Local Outlicr Factor (LOF) arc tlic primary components ot anomaly detcction algorithm-based machine lcaming. ln order to train the model for OC-SVM, thc normal data are used to create ‹i hyperplane, which is then used to circle the positii e data. OF-SVM takes the hyperplane as a standard and considers the examples inside the circle are positive. Since the calculation of potion capability is tedious, OC-SVM isn't broadly utilized under monstrous information [5-7]. Principal componcnts (PCA) is a statistical algorithm for transforming a set of potcntially correlated variables into a set of linearly uncOrrelated variables [8]. By comparing the density of the sample to that of its ncighbor, LOF dctcrmincs whcthcr a point is an outlicr and incasurcs the sample's density deviation in relation to its neighbors.

Paper ID: NCRDEAS-71

A genetic algorithm and dynamic adaptive particle swarm optimization for various constrained engineering design optimization issues

Jignyasha Patnaik1, Jharana Das Adhikari2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: pkpani@rec.ac.in1, umasankardas@rec.ac.in2

Abstract:

A powcrful vcrsatilc inolcculc swamp streamlining and hcrcditary calculation is introduccd to tackle obliged designing cnhancemcnt issucs. The fundamental particle swarm optimization algorithm incorporates a dynamic adaptive ineuia factor to adaptively adjust searching velocity throughout the search process in order to strike a balance between the global optima search capability and the convergence rate. The paoicle swarm optiirizatiOn algorithm incorporates gcnctic algorithm-rclatcd operators likc the crossover opcrator, a selection operator with a timc- varying selection prob‹ibility, and an n-point random mutation operator in order to take full advantage of the optimal solutions it generates. These administrators are utilized to differentiate the multinide and forestall untimely combination. The dynamic adaptive particle swarm optimization and genetic algorithm outperforms several other meta-heuristic algorithms in most cases in tcrins of solution quality, robustncss, and convcrgcncc ratc in tcsts on ninc constrained mechanical cngineering design optimization problems with various objective functions, constraints, and design variables.

Introduction:

Numerous optimization algorithms havc bccn proposed to rcsolvc various nonlincarly constrained enginecring design optimization problcms. There are basically two types of optimization algorithms: a stochastic calculation and deterministic one. The steepest descend method, the quasi-Newton method, and the interior-reflective Newton method are all examples of conventional deterministic optimization techniques that call for the fulfillment of diffcrcntiablc objective function conditions. Thcsc techniques typically usc gradient-bascd
‹algorithms. Numcrous stochastic optimization algorithms, such as thc particle sw‹irm optimization (PSO) algorithm, 2 the genetic algorithm (GA), 3-5, the firefly algO thm, 6 ant colony optimization, 7 artificial bee colony (ABC), b mine blast algorithm (MBA), 9 simulated annealing (SA) algorithm, 10 biogeography-based optimization (RBO) algorithm 11, have been proposed to ovcrcome these shortcomings for complcx optimization problems with strong nonlinearity and high dimensions. Thcsc methods are Meta-heuristic and influenced by physical and natural phenomena, these stochastic optimization algorithms are typically meta-heuristic.

Paper ID: NCRDEAS-72

A Test Rack for an S-CAM Frontal Car Camera

Kaushik Mishra1, Kamalakanta Padhi2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: kmishra@rec.ac.in1, kpadhi@rec.ac.in2

Abstract:

An experimental stand for testing the S-CAM front car camera with embedded image recognition systems is presented in this paper. A microprocessor-based system converts the camera's CAN messages into USART messages. The messages are deciphered by MATLAB script based on data set or trattic signs as pcr Clcan Strcct Codc. The testing stand is chicfly held back nothing inspired by the fields of gadgcts and innovations connected with auto branch, also. The second objective is to investigate the et't'ectiveness of the trat'tic sign recognition system, which is One of the S-CAM camera's features. The testing stand's technical specifications, capabilities, and limitations were also discussed. The seat activity was delineated with instances of solid pictures, livclincss and genuine films.

Keywords — auto innovation, safety on the road, ADAS, the front camera, traffic sign recognition

Introduction- Every few years, numerous organizations, such as the WHO, the European ComirissiOn, and the Organization fOr Economic Co-operation and Development (OECD), produce reports that discuss the actual circumstances and shifts in road saf'ety over time. The World Health Organization presents the global situation in thc report [1]. Sadly, the number of people killed in trat'tic accidents cOntinues to rise, reaching a high of 1.35 million in 201 It! It is difficult to picmrc its size and tragically any singlc casc thcrc is cxtrcmcly scnsational circumstances for families. Let's use the WHO Director-General's words: "There is a phone call or a knock on the door that we all dread, in which we are told that a loved one has been killed or severely injured in a road traffic collision." Howcvcr, there is good news as wcll. In rcccnt years, there has been a steady decline in the death rate in relation to the number of vehicles on the road in comparison to the global population.

Paper ID: NCRDEAS-73

Acquisition of Data Module in Open-Source for Quantum Physics-A Sampler

Prof. Umakanta Dash1, Prof.Swotismita Das2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: udash@rec.ac.in1, sdas@rec.ac.in2

Abstract:

The Sinara hardware platform is a modular, open-source mcasurement and control system designed specifically for hard real-time perfOrniance-intensive quantum applications. The oper- source software ARTIQ, which offers timing resolution of nanoseconds and latency of sub- microsecoiids, is in charge of controlling and managing the hardware. With programmable gain and a customizable intcrtacc, the Sampler is an all-purposc precision ADC sampling unit. It is utilized in various applications like laser recurrence and power servo. The Sampler module's construction and characteristics as obtained are discussed in this paper.

Keywords—ADC, FPCiA, particle trap, quantum instruments, ARTIQ.

Introduction :

There are a number of issues with the control electronics used in many trapped-ion and other quantum physics cxperiinents. In most cases, an intcrnally developed solution lacks suiticicnt consideration for good design, rcproducibility, tcsting, and documentation. It rcndcrs those systems unstable, unreliable, and challenging to operate, upkeep, and replicate in other labs. Additionally, it duplicates work done in various laboratories. Additionally, the existing systems' performance and features, such as their capacity tor pulse shaping, are becoming insufficient for some experiments. The Sinara and ARTIQ projccts [1] provide a crowd-funded, open-source, and commercially available hardwarc and software cnvironnicnt that addrcsscs the aforementioned issues [2][3]. Over the course of three years, the Sinara project's community developed over foxy boards and modules with success. The greater part of them are accessible financially. In addition to Kasli FPGA controller [5], Sampler module is one of the most frc•uently utilized building blocks of numerous Sinara ecosystem-based control systems.

Paper ID: NCRDEAS-74

Effective Authentication Risk Evaluation

Prof. Santosh Kumar Naik1, Dr. Umasankar Das2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: sknaik@rec.ac.in1, umasankardas@rec.ac.in2

ABSTRACT:

Deployed software is currently constantly under attack. Aggressors have been taking advantage of weaknesses for a really long time and appear to be expanding their assaults. Antivirus softwarc, intrusion dctcction systems, and firew‹i1ls can't completely resolvc this issuc. Attackers can only be stopped and users can feel sat'e trom being exploited if the software development community works togcthcr to build safcr sotlwarc. It has bccn obscrvcd that the appropriatc security assurance mechanism and countermcasures ought to be includcd in each phase of the SDLC. Security measures must be incorporated throughout the SDLC phases, staring with rcquircincnts and continuing through design, implementation, testing, and dcploymcnt. Onc of the widely accepted measures of protection mechanisms is authentication. Fitting degree of confirmation night be well uphold security highlights and subsequently guarantee security. The risk assessment to incorporate security assurance steps from the beginning *OF* the development lifecycle is followed by the identification of various attributes of the "Authentication" Policy and their weighting. This will mJe it possiblc to evaluate the appropriateness of authentication in terms of risk and lead to additional security assurance measures or countermeasures.

KEYWORDS: Software Security, Security Assurance, Authentication Policy, AuthenticatiOn Attributes, Risk Assessment, Authentication

INTRODUCTION:

Online services still use passwords as thcir primary iorm of authcntication [23]. Noncthclcss, dangers to secret phrase based confirmation are expanding, e.g, by huge scopc secret phrase data set holes and accreditation stut'ting [26].

As a result, in order to adequately safeguard their users, wehsite Owners are required to provide additional or different authentication mechanisms. One such measure is known as two-factor authentication (also known as 2FA), but users have found it to be unpopular (19). Recluse it neccssitates specialized hardware and user participation, bioinctric authcntication is dccincd unsuitable for large-scale online services [9]. Risk-based authentication (RBA) was implemented to safeguard users by a number of large online services for these reasOns [27]. RBA is an adaptive authentication method that offers high levels of security while requiring little user interaction. As a result, it has the pOtential tO be more popular with users than 2FA. Additionally, the NIST digital identity guidclincs rccommcnd RBA to prevent account takcovcr 12].

Paper ID: NCRDEAS-75

Developing A Frame Work For Online Practice Examination And Automated Score Gene Ration

Prof. Shashi Bhushan Panda1, Prof. Saraju Prasad Khadanga2
1,2 Raajdhani Engineering College, Bhubaneswar, India
Email: sbpandal@rec.ac.in1, spk@rec.ac.in2

Abstract:

The examination procedure is the method by which the ability and qu‹ility of the examiners can be measured. It is necessary to guarantee the exarninees' quality. The process by which participants can connect to the exam sitc via the Intcrnct using desktop computers, laptops, or mobile phones, regardless of where they are, is known as the online examination system. The process by which exam answer scripts are autOmatically evaluated to generate scores is known as automated scOre generation. Even though there are a lot of online exam systems, their main problem is that they can't accurately calculate an automated score, especially trom text-based
‹answers. Additioniilly, the majority of them speak only one language. Consequently, examiners may take the exam in a particular language. In light *OF* this fact, we present a trainewOrk in this paper that can handle written and multiple-choice qucstions (MCQ) tests in English and Bangla. The qucstions and answers are stored in a database that we crcate. In the web pagc, the questions from the database are displayed, with MCQ answer options and written question text boxes. We analyzed the responses to the writtcn questions in a varicty of ways in order to gcncratc the scores for the questions. However, we simply compared the user's responses to those in the database in order to generate the MCQ questions' scores.

Keywords: automated scoring, multiple-choice questions, answer analysis, and experimental analysis Management.

Introduction:

The examination system helps to distinguish instruction from evaluation. It elevates educators to make the illustration arranging and show in the class cautiously. Additionally, it is an important method for assessing the educational impact. The educatiOn system tray benefit greatly from the use of online practice examination systems. Presentation of online assessment frameworks can set asidc tiine ‹ind cash too as it can legitimize ones capacity. Even though online examinations are not yet very common in our country, it appears to be very helpful for students tO prepare for various exams.In light of this, wc havc dcvclopcd an online examination systcin that cnablcs studcnts to takc a variety of MCQ and written exams and generate automatic scores upon completion. One can take the exam in real time and instantly receive the results if they ha› e acccss to an lnternet-conncctcd computcr. He or shc can even use a laptop or smart phone to attend the exam while moving around.

Paper ID: NCRDEAS-76

Coupling coefficient observer for dynamic wireless charging devices based on the Kalman filter

Julee Margarette Suthi 1, Guru Prasad Dash 2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: jmsuthi@rec.ac.in1, gpdash@rec.ac.in2

Abstract:

When the lOad impedance is identical to the optimal impedance value in the dynamic wireless charging system for clcctric vchiclcs, the transfer efficiency achicvcd its maximum valuc. However, the coupling coefficient, which varies with the location of the clectric car, determines the ideal impedance value. Therefore, knowledge of the coupling coefficient is required to both monitor the idcal impedance and to incrcasc transicr cfticicncy. A coupling cocffieicnt obscrvcr method based on the Kaliuan filter is suggested in this article. The active rectifier is then improved in effectiveness on the secondary side by an optimal impedance controller. The outcomes demonstrate the high accuracy of the estimation technique. Both when et't'ect measurement noise and changing system parameters, the estimated mutual inductance error is less than 5^{O} Compared to the traditional estimation tcchnique, system cfficiency increascd by 3.2%.

Keywords: Active rectifier, Dynamic wireless charging, Electric vehicle, Improve efficiency, Kalman filter

Introduction

Bccausc it streamlines the powcr supply process and reduccs somc of the risks associated with clectrical leakage for users, wireless power transfer (WPT) technology is becoming more and more pOpular for industrial uses as well as electric vehicles (EVs) [I][3]. Because WPT can decrcasc battery capacity and inercasc journey distance, rcscarch is being donc on using it to charge EVs while they are in motion [4] through [7]. The only factor affecting transfer effectiveness after the coil, compensation circuit, and working frequency have been develOped is the load impedance. Only at a load impedance does the transfer efficiency reach its maximum, and this number is referred to as the optimal load impedance [l]. At different load impedances, cfficiency r‹ipidly dccreases [10]. Additionally, the lo‹id resistancc varics based on the battery's level of charge [I I] through [13]. Impedance matching management is therefore required tO incrcasc cttcctivcncss.

Paper ID: NCRDEAS-77

A reliable fuzzy logic PI controller for charging the batteries in photovoltaic systems

Prof. Subhransu Sekhar Tripathy1, Prof. Srinibas Swain2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: sst@rec.ac.in1, sswain@rec.ac.in2

Abstract:

This article describes a photovoltaic (PV) system design that enables battery charging iii a varicty of climatic conditions. Two DC-DC convcrtcrsa boost converter and a Buck converter— make up thc device undcr invcstigation. The first one uses a novel variablc step size P&O-based MPPT with high tracking precision in comparison to traditional methods like PO and INC to cxtract the most powcr possible from the PV array. In contrast to traditional PI and PID controllers, the second converters seek to regulate the output voltage and current that feeds the battery using a robust optimal PI (O-PI). O-PI has a faster time response and higher accuracy. The MATLAB/Simulink environment is used to evaluate and validate the overall system as well as the control strategies. The simulations results show the effectiveness and the robustness of the system.

Keywords: Battery, Optimal PI, Photovoltaic system, PID controller, Variable step size P&O

INTRODUCTION

Global demand for electricity has skyrocketed, particularly in isolated rural regions and mountains. For the generation of energy and heat, iossil tucls such as coal, oil, and gas arc still rcquired. They are the prim‹iry sources of CO2 emissions, but unlike rcnewable sourccs, thcir stocks are limited. Due to their low cost, photovoltaic (PV) systems ha› e captured the attention of many pcoplc. Thc generated cncrgy will be kcpt in batteries it it is not immcdiatcly used.These panels do, however, have a poor efficiency range [1] and current and voltage that are affected by various environmental factors like temperature and solar radiation levels [2]. There is only one point on the curve where the PV cell produces the most electrical power because of the nonlinear nature of the PV with regard to the generation of electrical energy. To maintain maximum power point tracking, a uniquc control algorithm is rcquired, and this is where maximum powGr point tracking conflicts with optimizing the performance of solar generators

Paper ID: NCRDEAS-78

Analysis of the performances of internal permanent magnet motors with various rotor iron pole shapes

Prof. Subhransu Sekhar Tripathy1, Prof. Srinibas Swain2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: sst@rec.ac.in1, sswain@rec.ac.in2

Abstract:

Since the development of permanent magnet material with high energy products, i.e., rare earth permanent magnet material, interior permanent magnet motors (IPMMs) have become more and more common. The performance of lPMMs with various rotor iron pole shapes, such as eccentric, sinusoidal, and sinusOidal with 3rcl order harmonic injected rotor pole arc shapes, is examined in this article. Comparisons have been madc bctwccn the cogging torque, static torque, tornue ripple, torquc-speed, and power-speed graphs of the aforementioned motors.To emphasize the impact of the rotor pole arc shape on the performance of the aforementioned motors, it should bc observed that the motors mentioned havc been dcsigncd with tlic sanic stator, PM shape, and dimensions. The aforementioned devices have been designed and examined using two-dimensional (2D) finite element analysis (FEA). It has been discovered that the IPM's rotor iron pole structure has a significant impact on the machine's operation, specifically on the output electromagnetic torque and its ripple.

Keywords: Cogging torquc, Electromagnetic torquc, Interior permanent mignet machine, Tors ue-speed curve

Conclusion:

Due to their obvious advantages, interior permanent magnet motors (IPMMs) have been rcgarded as potenti‹il candidates for a variety of applications [1]—[6]. Increasing the mechanical strength and dGmagnetization withdraw capacity will improve the machines' reliability because IPMMs manufacture with buried PM in the rotor iron. Additionally, duc to thc prcscncc of the rcluctance torque [7]-[13], such a structure produces a greatcr electromagnetic torque in comparison to other PM machine configurations. Increasing the IPMMs' average torque capacity has been discussed in a lot of writing. Sonic studies conccntrate on the location and configuration of the magnet because these factors are crucial to the effectiveness of IPMMs [14]. I-type, spoke- type, V-type, and U-type are the four different PM configurations that have been launched with IPMMS. Each arrangement has benefits and drawbacks relative to the others, according to the literature [15], [16]. The primary issue with such a structure is rotor iron saturation, even though the V-type machine had the greatest torque capacity.

Paper ID: NCRDEAS-79

Applications of DTC with fuzzy logic in multi-machine systems for propulsion

Prof. Suren Kumar Sahu1, Prof. Subrat Bhol2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: sksahu@rec.ac.in1, sbhol@rec.ac.in2

Abstract:

In this study, an electric vehicle application of the direct torque control (DTC) technique for multi-machine systems (EVs). The variable master-slave control (VMSC) initially ensures magnctic quantity rnanagcmcnt while the DTC control technique associatcd with the model rcference adaptive systcm (MRAS) is used for speed control. A DTC techniquc and a fuzzy logic approach have been joined to improve the studied system's technical performance. These two control techniques are used to emphasize the traction chain's speed, accuracy, stability, and durability during specific stress tests placed on the wheel motor. The findings from the MATLAB/Simulink software cnablcd a tcchnical pcrtormancc comparison or the two suggcstcd methods. It should be noted that the direct fuzzy logic torque control (DATC) has bettcr pertonrance than the DTC associated with the MRAS system as a rise time reduction of 1.4 percent, an oscillation of torque, and flux amplitude of less than 9 percent, static steady-state error near zero. The DTFC control method responds favorably to electric vehicle traction chain systems by the nature of the comfort and satcty provided.

Keywords: Asynchronous motor, Direct torque control, Electric vehicle, Fuzzy logic, Variable master slave control

Introduction

The new generation of electric cars has prOven to be valuable assets in light of the rapidly rising energy demand and the global objcctivc to protcct the environment by lowcring grccnliousc gas emissions [l]—[3]. As a result, new innovations, particularly in the area of electric drive, are made possible by the advancement of electriC T Obility [4], [5]. The traction system mechanism of the electric car is controlled by electric actuators. Due to their dependability, attordability, and outstanding robustness, induction devices are frequently employed for this purpose [6]—[9]. Only when an appropriate control systcm, such as direct torque control (DTC), is used to move thc electric actuator that makes up the vehicle can it operate at its best [10]. It is true that this control systcm guarantccs a quick dynamic rcsponsc of the torque and stator flux, but it also has somc disadvantages that affect the wear of the engine's acceleration and increase noise levels in the passenger area. This control system has undergone numerous changes and improvements since it was crcatcd by Takaliaslii and Noguchi [10] including direct torque control linkcd to vcctor modulation (SVM-DTC), direct torque control based on artificial intelligence like fuzzy logic (DTFC), neural networks (DTNC), and genetic algorithms [2].

Paper ID: NCRDEAS-80

Design and Analysis of Boost Converter for Maximum Power Point Tracking in Solar PV systems

Dr. Prasant Kumar Pani1, Dr. Umasankar Das2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: pkpani@rec.ac.in1, umasankardas@rec.ac.in2

Abstract:

Altcmativc energy sourccs, like rcncwablc cncrgy, should hclp us move away from cncrgy sources that depend on petroleum. Solar energy is the most palatable option among all renewable energy sources because it is widely accessible and cost-free. A solar array plus a DC-DC converter make up a typical solar power system. In order to transfer the most power possible from the solar PV module to the load, a DC-DC converter serves as an interface between the load and the PV module. Analyzing the convener is essential in order to create a photovoltaic (PV) power generation system with an appropriate converter tOpOlogy. Ii4 this study, a DC-DC boost convcrtcr model and physical dcsign for a solar PV system (the TET-12 10 manufactured by Thrive Energy Technologies Pvt. Ltd.) are described and evaluated using MATLAB's SIMSCAPE library. The outcome demonstrates that any maximum power point tracking technique may bc used to implcmcnt the planned converter, which provides the highest powcr at 70.06*/» of duty cycle. This work also provides the tiny signal analysis of the boost converter, which is highly beneficial for the stability analysis.

Keywords: DC-DC converter; boost convcrtcr; maximum powcr point tracking; converter dcsign.

Introduction

The continued use of fossil fuels has lowcrcd the amount of fossil fuel reserves, ncgativcly impacted the ecosystem by deplcting the biosphere, and contributcd cumulativcly to global warming. Solar energy offers a possible substitute for the non-renewable resources, which are becoming more and scarcer. Tlic climate in India, whcrc thcrc arc roughly 300 days of clear, sunny skies, otfers a lot of potential for using solar power. Solar energy has the ability to provide 20 MW *Of* power per squarC kilometer and can be developed for long-tern use. A solar panel is a grouping of connected photovoltaic (sometimes referred to as solar) cells. The solar panel can be utilised in a wide range of business and residential applications, including as part of a larger photovoltaic system to produce and supply elcctricity. One solar panel has a finitc amount of power it can produce. The photovoltaic effect allows solar panels to generate electricity using the sun's light energy. Using solar photovoltaic (PV) technology, solar cncrgy is transfonncd into electrical encrgy. Sol‹ir PV, Power clcctronics conveners [2-3], and a control dcvice to manage the electricity collected from solar PV make up the entire solar energy conversion system.

Paper ID: NCRDEAS-81

Design and performance analysis of three photovoltaic systems to improve solar power management

Prof. Ranjan Kumar Samantaray1, Prof. Rajib Lochan Paramguru2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: rks@rec.ac.in1, rlp@rec.ac.in2

Abstract:

The design, implementation, and characterization of a low-cost, small-scale solar tracking system are discussed in this paper. A dual-axis, sensor less (open loop), solar tracker was designed. The system was made to be sturdy and transportable. Two motors, a I O-watt solar panel, an Adriano microprocessor, a Ni-Cd battery, and several sensors for measuring temperature, humidity, position, and light intensity made up the solar tracker's hardware. The sensors' data were gathered using a micro-SD card reader. With a +/- I ^{O} accuracy, the device could *Io IION* the sun's position. Thrce photovoltaic (PV) systems wcrc comparcd in order to characterize the performance of the tracker. The solar tracker was the third PV system, with the othcr two fixed (at 0 and 45 degrees). The solar tracker generated 98.1 mW on average, the 45-degree angle PV system produced 96.9mW on avcragc, and the 0-degree angle PV systcm produccd 95inW on average. The power produced by the solar tracker system increased when compared to the baseline data. Notwithstanding the fact that the increase in electricity generation in this study was not large, the project's primary goal was accomplished.

Keywords: dual-axis solar tracker, automatcd position, photovoltaic cclls, scnsor lcss solar tracker.

INTRODUCTION

A small-scale solar tracker system was designed, built, and characterized as part of the research project. One of society's most pressing challenges in the twenty-first century is finding energy sources to meet thc planet's rising demand [l]. Electricity costs can be significantly decrcased by using photOVOltaic (PV) SOlar cells to convert sunlight to electricity. Sun trackers are crucial tools for increasing productivity in this context [2]. A solar tracker can be used to watch the sun's position and m‹ike surc that the sun's r‹iys arc constantly perpendicular to the surface of the solar panel, allowing for the extraction of the maximum output power from a PV module [3, 4]. Studies have shown that solar trackcrs can catch 20‘/o or inorc of the sun's cncrgy [5, 6]. Sun trackers can be created as single-axis systems with one degree of treedom or dual-axis systems with two degrees of freedom [7]. It was demonstrated in [S] that a solar tracker with one degree of freedom can gather up to 20% more energy than a tixed PV module. According to [9]'s authors, a dual-axis solar tracker can provide up to 33* more energy than a fixed PV module.

Paper ID: NCRDEAS-82

Study of PV Inverters for On-Grid and Off-Grid Micro Resource

Dr. Prasant Kumar Pani1, Dr. Umasankar Das2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: pkpani@rec.ac.in1, umasankardas@rec.ac.in2

Abstract:

This paper reviews the status in industry and academia regarding configurations, topolOgies, controls, and grid connections in grid-tied and micro-grid PV inverter applications. The paper will discuss the major technical needs to address problems in bringing cost down, increasing efficiency and improving reliability/availability. The ɾaper foresees that new grid intcrconncction tcaturcs will have to be integrated more into the inverters, along with the widc spre‹iding use of distributcd gcnerations.

Keywords: grid-tie PV invertcr, modular inverter, Inverter efficiency, micro-grid

Introduction

The tremendous growth in the PV market in the recent years all over the world has been stimulating wide intcrcsts from industry rcscarchcs and univcrsitics participating in the technology dcvelopment. Significant effoos on ncw materials, device concepts and processes, and manufacturing technologies are being made in order to bring down the costs of PV cells. Invcrtcr which usually represents 20 of tlic system cost and the major reliability bottlcncck in a PV system should receive due attention. Typical guarantee for PV inverter is 5 years, except fora few manufacturers who are jumping to 10 years, in comparison to 20 years for PV panels. The key technical aspects that will drive improvements incest, reliability and efficiency of PV inverters, which are key to success, will be addressed in this paper. Inverter configuration and topology rcpresents the way that how DC power from Parry, small or large scalc, will be extracted, and how this extracted power will be converted to AC connected to grid or fed to island load. Invcrtcrs designed with niodularity and scalability will drive the cost down in large volume production due to simplification in designing, manufacturing, opcration, and maintenance processes. PV inveuer system with multiple inveuer modules operating in parallel arc also cxpcctcd to improve systcm availability and cfticicncy.

Paper ID: NCRDEAS-83

A Technique for Determining the Fewest Items in Fuzzy Clusters

Prof. Suren Kumar Sahu1, Prof. Subrat Bhol2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: sksahu@rec.ac.in1, sbhol@rec.ac.in2

Abstract:

The difficulty of estimating the value of the least numbCr *Of* objects in fuxzy clusters is discussed in the tlicorctical note. This problem is tollowcd by the detection of the bcst numbcr of items in fuzzy clusters using heuristic probabilistic clustering. A method for determining the initial minimum value of the number *OF* objects in tuzzy clusters is suggested, and a strategy for determining the optimal maximal number of elements in a priori unknown number of fuzzy clusters of the sought clustering structure is provided. Conclusions are drawn afier considering numerical instanccs.

Keywords: CFS clustering, incremental clustering, the Industrial Internet of Things, and K-Medoids

Introduction:

Using a dynamic global information network, smart electronics are integrated into production systems to create industriai IoT. It is making modern industrial production and applications more eft'ective and et'ticient. For instance, real-time condition monitoring, structural health monitOriiig, remote diagnosis and remote control of production systems are all made possible by industrial loT. Furthermore, smart factorics can dynamically organizc with enhance production due to industrial IOT. In the meantime, industrial IoT presents numerOus new difficulties tor large data managcnicnt and smart control. Uncommonly, a ton of scnsors conveyed in modem IoT frameworks are gathering a critical volume of information stream or dynamic information. However, it is difficult to analyze a large data stream because the underlying pattern they reveal may changc over timc and the large numbers of samples that enter the stream arc typically timc- dependent.

Paper ID: NCRDEAS-84

Analyzing the detection of automobiles using remotely sensed data and high-resolution satellite images

Prof.Sagarika Das1, Prof. Rashmi Ranjan Tarai2
1, 2 Raajdhani Engineering College, Bhubaneswar, India
Email: sdas@rec.ac.in1, rrtarai@rec.ac.in2

Abstract:

Due to the numerous drawbacks of conventional techniques for gathering traffic data, the intelligent traffic system has turned its attention to the collection of road traffic data from high- rcsolution satcllitc photos. In this study, the high-resolution satcllitc imagc processing and vchicle recognition system are cstablished using the object-orientcd classification method. Prior to improving vehicle information in remote sensing photos, the high-resOlution satellite image was processed by median filtering and go through dernising. This was accomplished utilizing the stretch of the grey histogram. Second, the image was segmented at the best scale possible using a mctliod that took the vchiclc's maximum average area into account. Thcn, a uniquc set or classification rules has bcen crcated for automobiles with dark colors bascd on their various color features. Then according to different color characteristics of ehicles with dark establish a separate classification rule set, based on the object-oriented classification of vehicle classification. By extracting feature threshold classification of more bright color vehicles and using a relationship bctwccn classcs of vchiclcs with the fuzzy classification incthod the dark color vehiclcs has been extracted. Finally formcd a high-rcsolution satellite remote sensing overall framework of vehicle detection has been performed.

Keywords: Agricultural planning, Image processing, *Object-based, unmanned aerial vehicle.*

Introduction:

As remote sensing technology advances, the method of traffic parameter extraction using photos trom remote scnsing is quickly becoming known to people. It is crucial to utilize the sensor to gather rcmote detecting infonnation that reflects ground transportation. Onc can cventiially finish target detection, recognition, and vehicle traffic infOrmation extraction by utilizing methOds like human-computer interaction and visual interpretation of remote sensing image. Many related advances have emerged thro«gho«t the course *OF* recent many years and numerous related tcclinologics havc emerged in rcccnt decades. The ability to provide multiple surtacc fcaturc information at various sp‹itial and temporal scales is a benefit of remote sensing. Traffic processors that estimate vehicles' speeds on the road network which is a radical departure from the conventional approach.