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VET

International Conference
on
Computational Sciences
and
Applied Mathematics
(ICCSAM 2023)

Conference Proceedings

International Journal of Innovative Technology and Creative Engineering Special Issue on International Conference on Computational Sciences and Applied Mathematics (ICCSAM-23)

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International Conference on Computational Sciences and Applied Mathematics
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ABOUT VET IAS

VET Institute *of* Arts and Science (VET IAS), affiliated to Bharathiar University, Coimbatore, the youngest member of the Vellalar family run by Vellalar Educational Trust is an intellectual community that nurtures student learning, fosters faculty research and creative activity. The institution offers 12 undergraduate courses, 2 postgraduate courses and research programme for English & Commerce. The institution emphasises on collaborative learning, individual intellectual development and respect for diverse points of view, preparing students to become critical thinkers, strong communicators and ethical leaders with global perspective. Our students will graduate understanding that what they do beyond the classroom can make an impact on the world since knowledge, understanding and intellectual courage for a purposeful life are woven into the fabric of their education.

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ABOUT THE DEPARTMENT (COMPUTER SCIENCE)

The School of Computer Science with 4 UG programmes B.Sc (Computer Science), B.Sc (Computer Science & Applications), B.Sc Computer Science (Artificial Intelligence and Data Science) and B.Sc (Information Technology) was started in the year 2020, with an intake of 60 students each and the department is facilitated with highly qualified, committed and expert members of faculty. The Department organises several enhancing functions through the department association CHETANA to encourage the students and the members of faculty. The School's mission is to advance, evolve and enhance computer science and its fundamentals to build the intellectual capital of the society. The School endeavours to be an important regional, national and international resource centre for the development of computing and its applications.

ABOUT THE DEPARTMENT (MATHEMATICS)

The Department of Mathematics was founded in 2019 with the motto of combining the power and diversity of the pure and applied techniques of Mathematics and to ensure mathematical collaborations both within and beyond VETIAS. The Department provides the beginners with bridge courses to get acquainted with the preliminaries of mathematics and its techniques. It imparts the principles of mathematical reasoning with utmost rigor and precision, ensuring they develop a strong foundation in this discipline. Alongside teaching, the members of the faculty actively engage in research by participating in conferences / seminars and collaborative works at the national and international Institutes / universities.

OBJECTIVES OF THE CONFERENCE

ICCSAM 2023 is a multi-disciplinary conference organized with the objective to provide forum for knowledge exchange of the most recent scientific and technological advances in the fields for the researchers, eminent academicians and students to exchange ideas, communicate and discuss research findings and new advances in computational and mathematical sciences. This conference provides the opportunity to meet eminent researchers, learn about innovative research ideas and developments around the world and become familiar with recent trends and technologies in Computational Sciences and Applied Mathematics. The conference aims to promote translation of basic research into national and international collaboration with universities and industrial research to convert applied investigation into real-time application.

CALL FOR PAPERS

The following are the Domains for the paper presentations and publications but not limited to:

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- » Mobile Computing
- » Cloud Computing
- » Big Data Analytics
- » 5G/6G Networks and IoT
- » Machine Learning and Deep Learning
- » Natural Language Processing
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- » Computational Mathematics
- » Fuzzy logic and Neural Networks
- » Image Processing
- » Artificial Intelligence
- » Data Analytics
- » Optimization Techniques

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CALL FOR PAPERS

ICCSAM 2023 includes plenary and invited learned lectures by renowned experts for their contributions in the thrust areas of the conference. The faculty members, scientist, research scholars, industry professionals and students are invited to present their original and unpublished work on the thrust areas. The prospective authors should submit their research articles through e-mail to iccsam@vetias.ac.in in prescribed format on or before 07.07.2023. Acceptance of the paper will be intimated through e-mail.

INSTRUCTIONS TO AUTHORS FOR PAPER SUBMISSION

The full length of paper to adhere to the following rules for paper submission.

- The paper should be original and should not have been published anywhere else or be under review for any journal or other conferences.
- Papers must not exceed 5000 words in length (not exceeding 6 pages), including abstract, figures, references and appendices.

- Manuscript submitted should be in English only.
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REGISTRATION

Registration is mandatory for all the authors of the accepted paper. Only the registered papers of the full length (selected after peer review process) will be published in the ICTACT Journal and IJITCE Journals. The presented articles will be considered for the journal publication as per norms.

IMPORTANT DATES

Deadline for Paper Submission	07.07.2023
Notification of Acceptance	12.07.2023
Registration & Camera-Ready Paper	14.07.2023

REGISTRATION FEE

Registration Fee includes conference kit, lunch & refreshments, e-proceedings and certificate.

Registration Details	Presentation	Participation
Students	Rs. 300/-	Rs. 200/-
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Special issue discusses about recent trends on mathematics concepts and computer science.

We look forward many more new technologies in the next month.

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CONFERENCE SCHEDULE

Time	Session		Speaker
9.30 a.m. to 10.30 a.m.	Inaugural Session		**Dr.S.Palaniammal,** Principal, Sri Krishna Adithya College of Arts and Science, Coimbatore.
10.30 a.m. to 10.45 a.m.	Tea Break		
10.45 a.m. to 12.00 p.m.	Technical Seesion - 1 Topic: Introduction to Machine Learning: Concepts, Algorithms, and Applications		**Dr.Chandrasekar Sakthivel,** Software & Hardware Engineer/Architect, SPECwpc Chair, Senior IEEE member, United States of America.
12.00 p.m. to 1.15 p.m.	Technical Seesion - 2 Topic: Recent Trends in Algebraic Graph Theory		Dr.Anjaly Kishore, Assistant Professor, Department of Mathematics, Vimala College (Autonomous), Thrissur, Kerala.
1.15 p.m. to 2.15 p.m.	Midday Break		
2.15 p.m. to 3.15 p.m.	Technical Seesion - 3 Topic: Cybersecurity Landscape: Emerging Threats, research challenges and future perspectives		Dr.Sivaraman Eswaran, Senior Lecturer, Computing (Cyber Security), Department of Electrical and Computer Engineering, Curtin University, Malaysia.
3.15 p.m. to 3.30 p.m.	Tea Break		
3.30 p.m. to 4.00 p.m.	Valedictory Session		

Contents

SPATIAL CONVOLUTED EDGE SMOOTHING FOR IMAGE ENHANCEMENT

Dr P Suresh Babu[1], M Sakthivadivu[2]
[1]Associate Professor, [2]Research Scholar
Department of Computer Science,
Bharathidasan College of Arts and Science, Erode, Tamil Nadu, India

Abstract - Image quality enhancement aims to improve the rich details from degraded images, which is applied in many fields, such as medical imaging, video surveillance, criminal investigations, remote sensing, etc. Natural images captured under varying light conditions have poor contrast, low brightness, hidden color and high noise. Numerous techniques have been developed for image enhancement. However, these techniques are only suitable for enhancing the images but it fails to remove the artifact-free quality improved results for various other types of images. Therefore, to meet this aim, in this paper, an automatic image enhancement technique called Spatial Convoluted Edge Smoothing (SCES) is introduced for image preprocessing to enhance the image quality with minimum error. The proposed SCES technique performs image preprocessing that includes two processes namely filtering and edge smoothing. Experimental evaluation is carried out using natural images with different factors such as mean square error and memory consumption with respect to a number of natural images and sizes.

Keywords: Image quality enhancement, Filter, spatial convolutive edge smoothing.

ECMDS: PLANT LEAF IMAGE DISEASES USING SEGMENTATION AND IMPROVED GLCM FEATURE EXTRACTION

Dhana Priyadharsini K[1]
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Kalpana B[2]
Professor, Avinashilingam university for women,
Coimbatore, Tamil Nadu, India

Abstract — Productivity in agriculture is important for economic expansion. The presence of disease in plants is very widespread, which is one of the reasons why plant disease detection is important in the agricultural industry. It is possible to identify disease from a plant's leaves using a technique called plant disease detection. Analyzing data augmentation, segmentation and segmentation features data are some of the phases in the process of detecting plant diseases. This paper, introduced the Enhanced Color based Mean shift Disease Segmentation (ECMDS) and Improved GLCM Feature Extraction model for effective plant disease identification. In recent years, deep learning has substantially improved the accuracy of object detection and image categorization systems. The experimental results show that the proposed segmentation algorithm can attain an accuracy of 96.232% . The trials made use of the well-known Plant Village dataset, which contains 54,305 images of various plant disease varieties classified into 38 classes.

Keywords: Enhanced Color based Meanshift Disease Segmentation and Improved GLCM

WAVELET TRANSFORMATION BASED FRACTAL COMPRESSION FOR IMAGE ENHANCEMENT

Dr P Suresh Babu[1], V Sivasankar[2]
[1]Associate Professor, [2]Research Scholar
Department of Computer Science,
Bharathidasan College of Arts and Science, Erode, Tamil Nadu, India

Abstract- Compression is a fundamental processing step in computer vision applications that efficiently stores and transmits the images while preserving the better possible quality. Images transmit from one device to another and the receiver gets the image with poor quality due to inefficient compression rates. In order to enhance the quality of the image, a novel image compression technique called Wavelet transformation based Fractal compression (WTFC) technique is introduced. The main aim of the WTFC technique is to perform efficient image quality enhancement with a higher compression ratio. In WTFC, numbers of images are collected from the input database. After that, image compression is performed to minimize the storage complexity by minimizing the unrelated and unnecessary parts of the image. After the compression, the Fractal decompression algorithm converts the encoded image into readable form. In this way, an efficient image quality enhancement is carried out with a higher compression ratio. Experimental evaluation is carried out using images with different factors such as compression ratio and compression time with respect to a number of images. The observed qualitative and quantitatively analyzed result confirms that the proposed WTFC technique achieves higher compression ratio with a minimum time than the state-of-the-art methods.

Keywords: Image, Image compression, Fractile contraction mapping, iterated function system, Fractal decompression algorithm

GENERATIVE AI: AN OVERVIEW

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Abstract - Generative Artificial Intelligence (AI) has emerged as a powerful paradigm within the field of machine learning, allowing machines to create original content and display creative behaviors. The paper provides an overview of generative AI, covering its algorithms and applications. The outline of the paper is the key principles and methods employed in generative AI, including prominent models like Generative Adversarial Networks (GANs) and Variational Autoencoders (VAEs). The first section of the paper elucidates the concept of generative AI and its associated algorithms, while the second section explains the practical applications of this technology.

Keywords : AI, GANs, VAEs.

ROLE AND DESIGN CONSIDERATION OF ENERGY AWARE SERVICE LEVEL AGREEMENTS IN CLOUD COMPUTING ENVIRONMENT

Manju Lata[1], Vikas Kumar[2], Hemant Verma[3]
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Abstract- Management and allocation of resources becomes very much vital for reducing the energy consumption in the cloud environment. A carefully designed Service Level Agreement (SLA) can play a crucial role in management of cloud energy efficiency and contributing to the over-all energy consumption. The SLA can make both customer and service provider as equal stake-holders for energy efficient design; hence the roles and responsibilities of each must be defined. Energy Aware SLA extends the existing SLA agreements to include energy and carbon aware parameters. One of the optimization challenges for reducing the data center energy requirements is to keep servers well utilized. During the peak hours, a substantial amount of energy is essential to process and execute the services by the cloud provider, and the significance of Energy Aware SLA is noticed in this case. In this paper authors discussed about the design of energy aware SLA along with the futuristic challenges.

Keywords: Energy Consumption, Cloud Environment, Service Level Agreement, Energy Efficiency, Data Center, Cloud Provider

GCD CONGRUITY SIGNCRYPTION FOR PROTECTED COMMUNICATION WITH BIG DATA

Dr P Suresh Babu[1], S Sangeetha[2]
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Abstract - Big data is a collection of huge data employed to examine and extract information from large datasets. With the generation of a large volume of data, It faces severe security risks and challenges such as data leakage, malicious use, etc. Many researchers carried out their research for performing protected data communication. But, the data confidentiality level was not improved by using existing cryptographic methods. Therefore, a GCD congruity signcryption for protected communication with Big data (GCDPC) technique is introduced for protected data communication with higher data confidentiality and lesser communication overhead. The GCDPC technique performs two processes, namely data classification and protected communication. Initially, a number of data are collected from the big dataset. After data classification, protected data transmission is performed using Multiplicative congruity signcryption technique. Multiplicative congruity signcryption includes three processes namely Multiplicative Congruity Key Generation, Signcryption and Unsigncryption. Experimental evaluation of the proposed GCDPC technique is carried out with respect to classification accuracy and communication overhead, with a different number of data. The discussed results indicates that the performance of GCDPC technique increases classification accuracy and minimum overhead than the other state-of-the-art methods.

Keywords: Protected data communication, Key Generation, Signcryption, Multiplicative congruity signcryption

SECURITY RISKS ON MOBILE DEVICES AND THEIR IMPACTS: FUTURE PROJECTION

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Abstract - Due to its ease of use and applications' distinctive qualities, portable gadgets are now used in all facets of life. However, an increase in security risks is also a result of more users. Examining the dangers to mobile operating systems is the focus of this study. The study discusses the four mobile operating systems (Android, Apple OS (iOS), Symbian, and Java ME) with the biggest user counts and offers statistical data on the features of each system and its main application areas. In the study, the most significant dangers to mobile operating systems (Malware, Vulnerabilities, and Attacks) and the risks posed by these risks were analysed chronologically, and a future-oriented security viewpoint was proposed.

Keywords: Vulnerabilities, Threats, Attacks, Mobile Devices, Mobile Operating System

A STUDY ON DISTANCE IN GRAPH THEORY AND ITS APPLICATION

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Abstract- Graph theory is applicable in the section of computer science. It relates to the multiple fields of engineering and geographical fragmentation. The concept of distance and time with a relational strategy to road networking is discussed with proper evaluation. The purpose of the paper is to discuss and understand the impact of distance in graph theory and to evaluate the impact of graph theory in the road-mapping framework.

Keywords: Graph topologies, Image processing, optimizing, networking, patterns

REVIEW ON DIFFERENT ENERGY OPTIMIZATION TECHNIQUES IN 5G/6G ASSISTED IOT NETWORK

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Abstract- Energy efficiency is a considerable problem to be resolved in the progress of 5G/6G-IoT networks. Because these IoT applications are connected to larger number of devices and therefore utilizes more energy. As significance, designing an energy-efficient IoT application is supports to give long-term services. The IoT devices used in 5G/6G environment are energy limited. Hence, battery replacement and charging of IoT devices positioned in remote or hostile environments are expensive and hard to implement. Therefore, Energy harvesting methods have been introduced as better solutions to give constant energy to massive IoT organization. Energy harvesting methods gets energy from dissimilar sources i.e. wind, hydro, and solar energy and thereby facilitate autonomous power production. Though, owing to the uncertainties of dynamic environments, Energy harvesting techniques cannot promise continuous power supply to all the nodes in IoT system. In this scenario, implementing energy management techniques that provide better energy efficiency performance in 5G/6G-IoT environment is attained greater significance. In existing, there are many machine learning concepts were introduced for providing solution to energy efficient data transmission in IoT. Therefore, the key objective of this study is to present an investigation of diverse energy optimization techniques employed in conventional 5G/6G assisted IoT applications.

Keywords: Energy Efficiency, Internet of Things (IoT), Devices, 5G, 6G

AGRICULTURAL INFORMATICS MONITORING SYSTEM USING IOT AND ARTIFICIAL INTELLIGENCE

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Abstract- Agricultural activity on the farm requires effort for instance, planting, maintaining, and harvesting crops requires resources such as cash, time, energy, and labour. A group of researchers created an AI that can recognize plant ailments. To educate the AI to recognize crop illnesses and insect damage, this team employed a method known as transfer learning. Technology has altered farming practises over time and has had a wide range of affects on the agriculture industry. By 2050, when the population is anticipated to increase from 7.5 billion to 9.7 billion, only an additional 4% of the planet's surface will be cultivated, placing further pressure on the land. In many countries around the world, agriculture is the main source of employment. As a result, farmers will have to exert more effort while using fewer resources. According to the same report, food production would need to increase by 60% in order to feed an additional two billion people.

Keywords: Internet of Things, Relay, Wi-Fi module ESP8266, Soil, Moisture and Temperature sensors

THEIL-SEN LINEAR DATA TRANSMISSION IN IoT

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Abstract - The Wireless Sensor Network is a self-organizing system of multiple-hop sensor nodes that communicate with one another wirelessly. The sensor node collects data while keeping an eye on the surrounding environment, transmits and receives data from/to many nodes. Energy is the most crucial factor to improve the total network longevity during data transmission. While massive data transfer poses a serious challenge to WSN, sensor nodes typically have minimal energy consumption. A cutting-edge method of machine learning called IoT aware Energy Indexed To extend the network lifetime in WSN, Theil-Sen Linear Regressive Time Instantaneous Data transfer (IoT-ETLR) is introduced. IoT-ETLR performs Theil-Sen Linear Regression Analysis to examine the remaining energy of the sensor nodes based on Camargo's index. Machine learning technique called Theil-Sen regression analysis is used to estimate the relationship between one or more variables. The more energy-efficient sensor nodes are found using a linear regression analysis. Following that, the Time difference of the arrival technique is used to determine the route way between the sources and sink nodes via nearby higher energy sensor nodes. Finally, the route path is built and data transmission is completed effectively. Energy consumption, packet delivery ratio, packet loss rate, and end-to-end delay are all experimentally evaluated in relation to various numbers of sensor nodes and data packets. The observed results show that our suggested IoT-ETLR technique outperforms state-of-the-art works in terms of energy-aware data transfer with a greater delivery ratio and less latency.

Keywords: IoT, WSN, Energy Efficient Data Transmission, Camargo's index, Theil-Sen Linear Regression, Time difference of arrival method

AN IOT - BASED APPROACH FOR CONTROLLING ELECTRICAL APPLIANCES IN THE SMART ROOM USING HUMAN MOVEMENT

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Abstract- The demand for more integration density, higher bandwidth, and lower power are always rising. Due to the rapid rise in the use of resources used on a daily basis during the past few years, there has been an increase in the demand for energy. Energy is produced from fossil fuels, which eventually run out. We therefore have a pressing need for an energy-saving system. The answer to completing the duties required for the creation of this system is the Internet of Things (IoT). In this study, an Internet of Things (IoT)-based system that allows different devices to be connected over the Internet in order to save energy is presented. The "IoT Based Electricity Conservation System" prototype's main goal is to incorporate the aforementioned features utilising a PIR sensor. If the PIR detects any motion, it sends a signal to NodeMCU which in turn triggers the relay to turn on the lights and turn off if no motion is detected.

Keywords: PIR sensor, Node MCU, Energy conservation, Automation, Internet of Things, Cost-effective, Time conserving, Energy efficient.

DIGITAL VIDEO SCRAMBLING AND DESCRAMBLING USING DWT IN CHROMINANCE CHANNEL

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Abstract- Video scramblers are commonly employed to prevent unauthorized access to video data. Several video scrambling systems rely on methods of directly distorting the visual image data (in the spatial domain) such that, without de-scrambling, the video appears unintelligible to a viewer. These scrambling techniques are not efficient for transmitting digital video signals because they, in general, will significantly change the statistical property of the original video signal, thus making it very difficult to compress. Our objective is to create the existing video file unintelligible to the Viewer using the Block cipher algorithm such as DES for intruders and hackers difficult to break the information. The algorithm is used to make the video file in the compressed format which makes efficient to travel across the Network without any traffic problems and also with higher security. The video file is converted into individual images at first in order to get the values of each frames and make the values interchange that makes the information unintelligible. Then the rearranged frames are converted again to video file it cannot be accessed except the client without the Descrambling process. In the Client side the Scrambled video is converted back to get the original Information as they have sent.

Keywords: DES, IPR, DVD, MANETs, AVI, BMP

ENSEMBLE DEEP LEARNING STRATEGIES FOR CHEST X-RAY IMAGES TO IMPROVE COVID-19 CASE IDENTIFICATION

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Abstract- People's lives continue to be drastically affected by COVID-19 all around the world. It is essential to quickly and cheaply screen the affected patients in order to fight this disease. Radiological testing, with a chest X-ray being the most accessible and affordable alternative, is one of the most effective ways to get there. Using chest X-ray pictures, we have suggested a Deep Convolutional Neural Network-based approach that can identify COVID-19 +ve patients. In the proposed work, many cutting-edge CNN models—including DenseNet201, Resnet50V2, and Inceptionv3—have been used. They everyone received individualized training to develop their own judgment. To forecast a class value, the models are then integrated using a novel weighted average ensembling strategy.Using publicly accessible chest X-ray pictures of COVID +ve and -ve cases, we evaluated the effectiveness of the treatment. To create training, test, and validation sets, 538 photos of COVID +ve patients and 468 images of COVID -ve patients were used. With a classification accuracy of 91.62%, the suggested method outperformed both the benchmark algorithm and the most recent CNN models. We created a GUI-based program for general use. Any medical professional can use this application to quickly identify COVID +ve patients using chest X-ray pictures by running it on any computer.

Keywords: COVID, WHO, CNN,X-ray, RT PCR

LEARNING SYSTEMS AND THEIR CHALLENGES IN CURRENT TECHNOLOGIES

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Abstract- Instructors are continuously endeavoring to customize learning for understudies. Innovation can assist them with arriving at new levels with admittance to continuous understudy information, longitudinal data, content, applications, and that's just the beginning. Innovation can assist instructors with establishing mixed learning conditions and influence computerized devices for developmental and summative evaluations, bringing new models for learning and educating to homerooms. Innovation in schooling and the right gadgets in understudies' grasp sets them up with the profession and specialized abilities they should find actual success today and in the upcoming labor force. Significant growth opportunities in STEAM can rouse imagination, assist understudies with applying importance to their learning, and set them up for future vocation open doors and occupations that haven't even been made at this point. Explicit abilities in coding, programming, actual processing, and computational reasoning have become normal necessities in the labor force. However making, understudies can acquire these abilities and sharpen their critical thinking and decisive reasoning abilities for the 21st 100 years. Advancing by doing with creator outlooks and conditions can be extremely captivating when planned and incorporated with the right innovation.

Keywords: Virtual homerooms, video, increased reality (AR), robots, e-learning

A REVIEW OF MACHINE LEARNING AND ITS APPLICATIONS

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Abstract- Application Machine learning has been quite helpful in finding things that can lead to crucial decisions as data has become more and more abundant over the past few decades. Artificial intelligence is a field that enables machines to learn from experience and examples, much like people do, and discover intriguing patterns without being taught. The algorithm is provided data and it creates a model using that data. It can forecast new values using this model. Finding something new and unknown can lead to the discovery of a wide range of new possibilities. Health, finance, retail, travel, media, image processing and computer vision, natural language processing, automated trading, automotive, aerospace, manufacturing and many other industries can all benefit from machine learning. In this study, the fundamentals of machine learning, its methods and its applications in diverse industries are reviewed.

Keywords: Supervised and unsupervised learning, regression, Naïve Bayes, Decision Tree

NUMERICAL STUDY OF THE EFFECT OF VISCELASTIC FLUID PAST AN ISOTHERMAL SPHERE IN DARCIAN POROUS REGIME

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Abstract - In this paper, we addressed the characteristics of two dimensional electro-conductive boundary layer flow of Williamson fluid over a sphere with convective boundary conditions. Thermal radiation and Darcy porous medium are considered at the sphere surface through the modified boundary conditions. To develop the mathematical descriptions of Williamson, energy and momentum are accounted. By as set of non-similarity transformation, the proposed leading PDEs of flow phenomena are converted into non-linearly ODEs with boundary condition and then the solved numerically. The numerical solutions of the non-dimensional system equations have been illustrated. MATLAB software as well-recognized scheme (Keller Box) is operated to solve problem for numerous values of governing parameters. The influence of Williamson viscoelastic fluid parameter, Magnetic body force parameter (M), Suction parameter (fw), Thermal radiation parameter (F) and Darcy number (Da) on skin friction and heat transfer treatment are demonstrated. Outputs exhibit that temperature gradient reduces with increase of M while it increases with augment of Da. Moreover, friction factor, heat and mass transfer rates are illustrated through graphs ant Tables. Present results compared with aforementioned published work.

Keywords: Porous Media, Magneto hydrodynamics, Radiation effect, Williamson model.

A SURVEY ON APPLICATIONS OF HEALTHCARE BY USING AI TECHNIQUES

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Abstract - The Internet of Things (IoT) and artificial intelligence (AI) are the driving forces behind the digital transformation of modern healthcare. Security issues must be taken into account from the beginning of any digital transformation's design. Due to the sensitivity of healthcare data, any breach jeopardizes patient privacy. Even more so with IoT networks where the attached devices are open to intrusion. Cyber attacks have the potential to have fatal repercussions. This paper gives a thorough overview and analysis of current research on using AI as a cybersecurity tool to secure IoT networks used in healthcare settings. It thoroughly reviews relevant works and finds a specific topic within the field that offers scholars an ideal learning opportunity.

Keywords: Internet of Things, Artificial Intelligence, Security, Privacy, Healthcare

TECHNIQUES FOR DATA MINING: A SURVEY PAPER

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Abstract- The idea of data mining was briefly discussed in this study, along with its relevance to its approaches. In-depth research is done on data mining based on neural networks and genetic algorithms, as well as important technologies and methods for achieving data mining on neural networks and genetic algorithms. In addition, a rigorous review of the rule extraction from ANN and GA is conducted in this study.

Keywords: Data Mining, Neural Network, Genetic Algorithm, Rule Extraction

SMART ID CARD FOR EMPLOYED WOMEN SAFETY BASED ON IOT SYSTEM

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Abstract- At Work premises and in public venues women must be protected from assault in many parts of the world. A smart ID card could make female employers safer and be one solution to this problem. Because of the built-in sensors and connectivity components, this ID card will be able to sense and respond to its surroundings based on the Internet of Things (IoT). If the sensors detect abnormal activities, such as a sudden movement or a loud noise, heart rate rise, GPS location will send a signal to the system. Following the completion of the data analysis, the system takes any necessary actions, such as sending alerts to security personnel or notifying on-call personnel. The proposed system will provide the user with access to an emergency panic button. The system's GPS component will track the user's location and send alerts to the appropriate parties. There will also be a cloud-based monitoring system with the proposed approach. This allows the employer orloved ones of the worker to track the worker's whereabouts and activities in real time. The system will analyze the data using machine learning techniques, and the results will reveal the worker's behavior and level of safety. A smart ID card linked tothe Internet of Things (IoT) could help women work in safer environments. The proposed technology would enable real-time monitoring, predictive alarms, and data analysis. The precise data greatly help the relatives and cops to recover them from unpleasant situations.

Keywords: IoT, Smart ID Card, Woman Safety, ESP32 Controller, IoT Interface, GPS, BMS

NEMOC-NCOV: A COMPREHENSIVE STUDY ON A CUSTOMIZED SELF-ATTENTION DEEP CONVOLUTIONAL NEURAL NETWORK FOR THE IDENTIFICATION OF DIVERSE MORBIDITYPATTERNS

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Abstract-COVID-19, a highly contagious coronavirus disease, has affected millions worldwide. Medical professionals face significant challenges in detecting and containing the disease due to its rapid growth and rising numbers. Medical image analysis is a growing field that could improve precision and rigor in addressing the issue. This study uses chest radiograph images to predict the 2019-nCoV virus, bacterial pneumonia, viral pneumonia, and pleurisy using deep learning and neural networks. This study proposes using convolutional neural networks, deep learning, and machine learning to distinguish COVID-19 positive, bacterial pneumonia, viral pneumonia, pleurisy, and healthy patients from chest radiography images. This study introduces a novel method for handling image structural complexity. Our method uses a neural network architecture that combines features from two state-of-the-art convolutional neural networks, ZFNet and VGG-16 Net. We hope to improve our model's image structure management by using these networks. Our network was tested on 7940 images in real-world scenarios. This evaluation tested the network's real-world performance. We tested the network extensively to understand its strengths and weaknesses so we could make informed deployment and improvement decisions. This study introduces a novel network architecture for detecting normal, bacterial, viral, pleurisy, and COVID-19 cases. The network's average accuracy of 95% is commendable, making it a promising diagnostic aid for radiologists. Given the rapid spread and severity of COVID-19, radiology must detect cases. Visual inspection of radiographic images is time-consuming and error-prone in traditional diagnostic methods. Thus, developing automated systems that accurately identify cases is crucial. Our network uses advanced machine learning to distinguish normal, bacterial, viral, pleurisy and COVID-19 cases. We were able to optimize the network's performance by training it on a large radiographic image dataset.

Keingords: Chest X-ray Images, Convolutional Neural Net- works, COVID-19, Pleurisy, Viral Pneumonia, Bacterial Pneu- monia, Deep Learning, ZFNet, VGG-16 Net

EMPLOYING A UAV UNIT FOR THE DATA DISSEMINATION PROTOCOL IN VANET WITH THE NAMED DATA ARCHITECTURE

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Abstract- The demand for more integration density, higher bandwidth, and lower power are always rising. Due to the rapid rise in the use of resources used on a daily basis during the past few years, there has been an increase in the demand for energy. Energy is produced from fossil fuels, which eventually run out. We therefore have a pressing need for an energy-saving system. The answer to completing the duties required for the creation of this system is the Internet of Things (IoT). In this study, an Internet of Things (IoT)-based system that allows different devices to be connected over the Internet in order to save energy is presented. As a result, a peer's reputation motivates it to cooperate and desist from malicious activities. The cryptographic protocol is coupled with self-certification and cryptographic mechanisms for identity management and countering Sybil attack. It illustrates the security and the efficiency of the system analytically and by means of simulations in a completely decentralized Gnutella-like P2P network. The model also evaluates the effect of control strategies like node quarantine on stifling the spread of malware. The model is then extended to consider the impact of P2P networks on the malware spread in networks of smart cell phones.

Keywords: TTL, P2P, UAV, NDN, RSU, QIP

ADVANCED FEATURE FUSION FOR MULTIMODAL BIOMETRIC USING HYBRID APPROACH TEMPLATE

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Abstract- Multimodal biometrics, which combines two or more biometric modalities/traits in a single identification system are becoming popular. Fingerprint and Iris are the most used and reliable biometrics having high performance but fail under certain conditions. We address this problem by combining fingerprint and iris biometrics to overcome limitation of unimodal fingerprint and iris biometric system. Besides enhancing accuracy, this framework also address non-universality, noisy input data, intraclass variation and spoof attacks. In this work we present a transformation based approach of combining fingerprint and iris at confidence level. The significance of this approach is that, it does not require any estimation, probabilistic interpretation or a large number of training score. The features are extracted from individual fingerprint and iris biometric modalities by efficient algorithm. These features are first matched with their corresponding templates to compute the corresponding scores at confidence level. Match scores obtained from these traits are transformed using different transformation techniques and combined by different fusion rule to generate a fused match score. Practical investigation demonstrate improved accuracy of this system over its unimodal counterpart.. The experimental result demonstrates significant improvement in performance. This, framework is easier to implement and requires less memory.

Keywords: VANET, TDG, UAV, NDN, RSU, QIP

SHARING SECRET WITH MULTI PARTY USING EFFICIENT VERIFIABLE THRESHOLD ALGORITHM

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Abstract- One of the most significant cryptographic primitives used for data outsourcing is secret sharing. One of the well-known secret sharing strategies in cryptography is the threshold-based scheme. Multiple secret sharing schemes can significantly increase the efficiency of secret sharing while a single secret sharing scheme has low efficiency. numerous secrets are shared among participants in a single sharing process using our efficient verified threshold multi-secret sharing system, which has numerous steps. A few weak subsets of participants can collectively uncover these secrets in this way. Because it is verifiable, each member may confirm their individual share. Our proposed scheme can share secrets to multiple participants and each has its own threshold access structure. Additionally, each participant only keeps one share, yet during the recovery process they are able to rebuild all secrets. The quantity of the participant's share is equal to that of each secret in this multi-stage-use secret sharing method, and the amount of information released meets the optimal lower bound. This multi-secret sharing system is more computationally secure and practical than the earlier verified (t; n)-threshold scheme.

Keywords: VANET,ITS,IVC,RSU.

MAINTAINABILITY METRIC MODEL FOR COMPONENT-BASED SOFTWARE EMPLOYING SOFT COMPUTING METHODOLOGIES

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Abstract- Due to their interdependencies and complexity, component-based software systems are difficult to maintain. Using soft computing techniques, this research investigates the creation of a maintainability metric model for component- based software. The difficulties in assessing and enhancing the maintainability of component-based software may be mitigated by the use of soft computing methods like fuzzy logic, evolutionary algorithms, and neural networks. In the present study, two assessment models for software maintainability are provided to aid software designers in creating such programmes. Fuzzy logic is used for the first 16 DTCM maintainability metric implementations. DRCE maintainability model employs Fuzzy logic, neural networks, and the ANFIS (Neuro-Fuzzy) approach to enhance the efficacy. Values from the model and those from other researchers are compared and contrasted. The model shows an increase of about 6% to 10%, depending on the inputs.

Keywords: Metric, Component-Based System (CBS), Soft computing

USER AUTHENTICATION BASED ON THE KEYSTROKE DYNAMICS

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Abstract- Authentication is frequently referred as the most critical part of a computer system security. Users commonly identify themselves using a combination of username and password, but sometimes this is not enough. Concerning web-based services, attacks like phishing or social engineering can easily result in identity theft. In addition, the widespread use of single sign-on services can seriously increase the consequences of such attacks. In these circumstances strong authentication is mandatory. Strong authentication is often implemented using additional authentication steps or specialized hardware modules, which is not suitable for web-based systems, However, biometrics can used to overcome these limitations. More specifically, behavioural biometrics based on keyboard typing patterns can provide an extra security layer on top of conventional authentication methods, with no additional cost and no impact to the user experience. This work aims to evaluate the feasibility of the implementation of strong authentication on the web using keystroke dynamics. This is carried out through the creation of an application prototype using python environment.

Keywords: MLP, PCA, Keystroke dynamics

ANALYSIS OF ENCRYPTION SCHEMES

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Abstract-In this paper, the need of secure communication of messages is now more important. Security in today's world is one of the important challenges. Ciphers can be converted into graphs for secret communication. The field of graph theory is widely used as a tool of encryption, due to its various properties and its easy representation in computers as a matrix. Various articles based on graph theory applications have been studied and we explore the usage of graph theory in cryptography has been proposed here.

Keywords: Graph theory, Cipher, encryption

ENHANCED AMBTC techniques USING BLOCK CLASSIFICATION FOR IMAGE COMPRESSION AND STEGANOGRAPHY

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Abstract- Block Truncation Coding (BTC) is a quick, simple and efficient lossy image compression technique that preserves moments of the input image blocks. In this paper, a two-level compression method is suggested. The input image is divided into small blocks of size 4 x 4 pixels. These blocks are classified into two types of blocks namely, the high-detail blocks and low-detail blocks in the first stage of compression. Two statistical moments the high mean and low mean along with a bit plane (16 bits) make up the high detail block. Low detailed blocks only record the mean values. The interpolation approach is adopted in the second level of compression for further bit rate reduction. A bpp of 2 is achieved with BTC and AMBTC compression techniques. But, the bpp achieved with the proposed method is 0.49, which is a significant improvement. Steganography is a method of hiding secret image as part of an image called stego image. This leads to extra overhead of time in transmitting the stego image. The proposed image compression method is implemented as part of Steganography to reduce the image data need for transmitting the secret data. The proposed method is tested with benchmark images such as Lena, Cameraman Boats, Bridge, Baboon, and Kush. The suggested method improves coding effectiveness while slightly degrading PSNR. Now-a-days, the technique of combining Image Compression with Steganography is becoming popular in maintaining secured transmission of data over Net. Steganography with the proposed compression technique leads to an embedding capacity of a maximum of 786432bits of secret data, which is a very good score.

Keywords : *Block Truncation Coding, Absolute Moment Block Truncation Coding, Mean Square Error, Signal to Noise Ratio, Peak Signal to Noise Ratio, Compression Ratio, StandardDeviation, Steganography, Stego image.*

ENHANCED DATA AGGREGATION STRATEGY FOR IOT-BASED WIRELESS SENSOR NETWORK VIA IDEAL CLUSTERING APPROACH

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Abstract- The Internet of Things (IoT), which is built on wireless sensor networks (WSNs), has grown significantly in popularity as a means of providing answers to several real-time applications through communication between sensor nodes and physical world objects. In order to achieve real-time quality of service (QoS), economical operation and long-term dependability, WSN-based IoT has emerged as a vital technology. The wireless interconnection of numerous items is made possible by IoT-based WSN nodes, which are small, equipped with irreplaceable batteries, and resource-constrained. IoT produces a large volume of data as an outcome of constant sensing and collecting, which may result in significant computing overhead, data redundancy, packet collisions and high energy usage. Significant research has been done to optimise node energy usage to increase network longevity in order to solve resource constraints. However, these solutions fail to handle data redundancy and have poorer throughput. The majority of present methods concentrate on increasing network lifetime through scheduling methods over duty cycles. The elimination of data redundancy and the generation of energy have both been addressed by cluster-based data aggregation techniques. This paper present an Effective Data Aggregation Strategy (EDAS) for IoT-based WSNs. This scheme takes into account the Enhanced Low Energy Adaptive Clustering Algorithm (E-LEACH) to build the ideal number of Cluster Heads (CH), taking into account the average network energy and node residual energy.

Keywords: IoT, WSNs, EDAS, E-LEACH, Cluster Heads (CH)

BASICS IN MOBILE COMPUTING AND ITS PRINCIPLES &APPLICATIONS: A STUDY

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Abstract- As people are adapting to the various advancements that mobile computing brings, securing the mobile computing is becoming more and more important. Over the past decades, the technology has reduced the size of the machinery and increased its performance. This development led to the development of a new concept called Mobile Computing. Mobile Computing essentially allows the data to be transmitted through the computers without any connection to any fixed physical parameter. Mobile computing is a collection of IT technologies, products, services and operational strategies and tactics that allow customers to access computing, data and related resources and capabilities simultaneously on mobile devices. Mobile computing and sensing combined with cloud computing enable new programs that manipulate big statistics series, saving time and improving productivity. This paper clearly deals with basics in mobile computing and its principles and designs.

Keywords: Mobile, Computing, Mobile communications, Applications, Mobile security

FUZZY-BASED INTRUSION DETECTION AND PREVENTION OF ATTACKS IN MANETS REQUIRE SUPPORT

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Abstract-The topology is chiefly inter-reliant on transmission powers of nodes and locations of mobile nodes. MANETs possess applicability in numerous domains such as military applications, corporate houses or meeting halls, dangerous mission programmer for assistance matters in case of disaster actions. Because of dynamic network topology and absence of centralized organization, the network security turns into a most significant issue in MANETs. In the numerous attacks, the DoS attack, being a multi-layer occurrence shows a foremost character in distracting the network. Generalized Intrusion Detection and Prevention (GIDP) mechanism has been anticipated, which employs the combination of anomaly-based and knowledge-based ID for safeguarding the MANETs from diversity of attacks. Fuzzy rules are then employed for isolating the misbehaving nodes to prevent intrusion.

Keywords: QoS, MAC, IDT, GIDP and SVM

STUDY OF FUTURE 6G AND 5G ACCESS NETWORKS FOR INTERNET OF THINGS APPLICATIONS

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Abstract- The utilisation of modern 5G and upcoming 6G Internet of Things (IoT) protocols/standards, applications, and access networks is thoroughly reviewed in this article. First, to make it easier for readers to comprehend and compare present and future Internet of Things technologies, the majority of IoT protocols/standards and application scenarios are summarised in the form of tables, illustrations, and diagrams. The analysis and discussion of the terrestrial and aerial radio access networks follows. A brief description of the development of 5G terrestrial access networks is provided, along with a quantitative analysis and discussion of its performance constraints. The terrestrial radio access network must contend with substantial route loss brought on by weather conditions such oxygen and water vapour absorption in the atmosphere, rainfall, and cloud/fog attenuation as the operating frequency approaches the sub-millimeter wave range. In order to address the coverage and path loss issues, aerial radio access networks are being developed in anticipation of 6G IoT. The aerial radio access designs and infrastructure are also examined in this assessment. This survey seeks to help readers gain a better understanding of the technical status of 5G IoT and the key performance parameters that must be met in order to transition to 6G IoT in the future.

Keywords: IoT, Wireless technologies, 5G, 6G, LoRaWAN, Millimetre wave, radio access network

OPERATION ON JELLY FISH GRAPH J(s, t)

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Abstract- In this article, we explain that the Jelly fish graph $J(s, t)$ has admits Vertex Prime Labeling. A Graph G = (V, E) is said to have a Vertex Prime Labeling if its edges can be labeled with distinct integers from {1, 2, 3,…, |E|} such that for each vertex of degree at least two, the Greatest Common Divisor of the labels on its incident edges is 1. We also prove that Vertex Prime Labeling in the context of the operation of duplication of a vertex.

Keywords: Jelly fish graph, Prime labeling, Vertex Prime labeling, Duplication of a vertex.

UNION, INTERSECTION AND CARTESIAN PRODUCT OF INTUITIONISTIC MULTI L – FUZZY SUBGROUPS WITH EXAMPLES

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Abstract- In this paper, we define the algebraic structures of Union, Intersection and Cartesian

Product of an Intuitionistic Multi L – Fuzzy Subgroups and some related theorems with its

examples are investigated.

GDSR POLICY LEARNING FOR TARGET OBJECT TRACKING IN WSN

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Abstract -A wireless sensor network (WSN) is a network of small devices, called sensors, used for sensing and monitoring the environmental conditions at various locations through wireless links. Target object tracking is the most important application of WSN where energy conservation plays an important role. Several methods have been developed for target object tracking in WSN with minimal energy consumption. But, the accuracy level was not increased by existing tracking techniques. In order to address these problems, a novel targets object tracking method called Energy Aware Gaussian Distributive Sammon Regularization Policy Learning (GDSRPL) for efficient target object tracking in WSN. The GDSRPL method consists of two major processes namely reference node selection, target detection. First, the energy of the sensor nodes is measured. Then apply Wilcoxon rank-sum test for identifying the reference node based on higher residual energy. When the target node arrived in the network, the reference node transmits the beacon message to all sensor nodes for detecting the target node's location. The sensor node transmits the target information to the base station through the reference nodes. After that, the base station performs target detection by using Akaike Gaussian distributive Generalized Tikhonov Regularization Analysis with the sensed data. In this way, energy-efficient target object tracking is accurately performed in WSN. Experimental evaluation is carried out on factors such as energy consumption, target object tracking accuracy with respect to a different number of sensor nodes. The performance results and discussion reveals that the proposed GDSRPL method efficiently increases the target tracking accuracy and minimizes the energy consumption than the existing techniques.

Keywords: WSN, target object tracking in WSN, Wilcoxon rank-sum test, Akaike Gaussian distributive Generalized Tikhonov Regularization Analysis, Sammon projective on-policy learning algorithm

ANALYTICAL METHOD TO PREDICT BREAST CANCER USING MACHINE-LEARNING ALGORITHMS

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Abstract- Every day each 13 minutes one women dies cause of breast cancer. Breast cancer is one type of cancer, which is growing cells in our body unconditionally. Mostly Women only affects. Four stages of disease, the chances of survival of stage 3 & 4 is very less but the stage 1 & 2 survival rate is high and the disease will be curable. Breast cancer results of damage of DNA and genetic Mutations. In UK and USA breast cancer is common disease. Aware of breast cancer is celebrated all over the world every month of October. It causes lack of exercise, obesity, weight gain, hormonal changes, and Family history. In this paper using Machine-learning Algorithm like decision tree, KNN, Logistic and random Forest to predicted breast cancer.

Keywords: Breast cancer, Obesity, family history, hormonal changes, machine learning, Decision Tree, Random Forest

NEXT-GENERATION WIRELESS SENSOR NETWORKS FOR CONGESTION CONTROL WITH ENERGY AND TRAFFIC AWARE OPTIMIZATION

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Abstract - In the current situation, where data traffic has expanded to the channel's aggregate capacity, congestion in Wireless Sensor Networks is an inescapable problem. This results in an overflow of the buffer at each receiving sensor node, which drops packets, lowers the packet delivery ratio and reduces network throughput because retransmitting every unacknowledged packet is not an energy-efficient solution for sensor nodes with limited resources. Since the routing problem has been shown to be NP-hard and it has been realised that heuristic-based approach provides better performance than their traditional counterparts, routing is one of the most popular methods for reducing the energy consumption of nodes and increasing throughput in WSNs. This research suggests an Effective Congestion Reduction Strategy employing the Huffman coding method and Ant colony optimization (ECRS-HA) to enhance network performance. This strategy combines optimization that is focused on both traffic and resources. Ant colony optimization has specifically been used to locate numerous congestion-free alternative pathways. The forward ant assures the successful formation of pathways travelling from sink to source node, taking into account the energy of the link, packet loss rate and congestion level. The forward ant generates multiple congestion-free paths from source to sink node. When choosing the best path, Huffman coding takes the packet loss rate on many alternative paths found through ant colony optimization into account. The simulation result shows that, in terms of average energy consumption, delay, throughput and packet delivery ratio, suggested approach surpasses state-of-the-art alternatives.

Keywords: Wireless Sensor Networks, Congestion Control, Huffman Coding, Ant colony optimization

EFFICIENT CLASSIFICATION TECHNIQUE FOR MANGO LEAF DISEASE DETECTION

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Abstract- Agriculture is the basic foundation for Indian economy. In India most of the people depend agriculture to run their life. Based on nature life cycle the productivity of plants differs and it also affected by various environmental condition. Most of the time diseased and affected areas have been easily detected by normal vision. This method of inspection prolong the period to identification of the disease and most of the time fruit flowers fall down before it goes to the stage of fruit. Immediate identification may save the production of plants and it leads to more yield. Still now many farmers have no clear knowledge about Computer Aided Analysis (CAD). Usability of Machine learning and Deep Learning spread their branch all over the field of agriculture. This paper experiment the mango tree disease particularly Anthracnose disease detection and classification with the help of Machine learning and Deep Learning algorithms such as Support Vector Machine (SVM), Convolution Neural Network (CNN). The accuracy of CNN classifier is higher when compared to SVM classifier. The result comparison shows that CNN provides better accuracy than SVM classification. Early and timely analysis may help the farmers to protect the mango fruit decay by this disease and support to improve the production of mango.

Keywords: Machine Learning, Deep Learning, Anthracnose, SVM, CNN

EDGE COMPUTING - BEYOND THE CLOUD

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Abstract- This article provides a guide to Edge Computing. Recently, industry investment and research interest in Edge Computing has grown dramatically, where the computing moves storage and computing to the internet from the cloud, where the internet has a closer proximity to the devices and sensors. Hence, Edge Computing makes it very much easier and possible to provide a highly responsive delivery of services for mobile computing, privacy-policy enforcement and scalability of big data-based AI processing.

Keywords: AI, Big data, Cloud, Edge Computing

CLUSTER-BASED WSN NETWORK LIFETIME IMPROVEMENT THROUGH ENERGY- PRESERVING COMPRESSED DATA SENSING

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Abstract- Wireless Sensor Networks (WSNs) are being employed in a variety of applications for wireless data collecting, communication, and smart computing as a result of extensive research efforts. Small, battery-powered sensor nodes with integrated smart computing capabilities are used to sense the physical environment, transform it to digital data, and transmit it to a data gathering node. The continual sensing of the physical world, however, consumes more power and depletes the sensor node's battery, which could lead to the node dying extremely quickly. Sensor nodes also have limited resources and battery capacity. In order to maintain the node for an extended period of time, energy conservation in WSN is therefore seen as the main concern. Compressive Recognising (CR) based WSNs offer to deliver a reliable solution while optimising a high number of transmissions and balancing traffic load. In order to improve network lifetime, which has historically been a bottleneck for WSNs, cluster-based techniques have been shown to be energy efficient. In order to increase the energy economy of WSNs and network longevity, this research proposes an energy-saving technique for cluster-based compressive data collecting. The properties of compressive sensing and the best tree -based data aggregation are merged in this technique to meet the QoS requirements. Existing LEACH is modified to Energy- Preserving Improved LEACH (EPI-LEACH) for cluster structure. Using an event-driven simulator tool, the EPI- LEACH system is simulated, and performance outcomes are assessed using QoS measures

Keywords: Clustering, energy efficiency, data compilation, Compressive Sensing, WSN
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EVALUATING THE DEDUPLICATION APPROACHES USING HYBRID METRICS

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Abstract - Because of the increased level of education among the populace in this age of competition, there are fewer employment available for them. Even the greatest in their industries are desired by the companies. Finding persons who are intelligent enough to be hired then becomes challenging. When considering these issues, one may consider a method that can manage them and simplify the work. This work is focused on the online hiring procedure. The system in place here manages the hiring process. After registering, the person will have an account and is referred to as an applied user. The work was developed to satisfy the needs of the company managers, who wanted the recruiting module to be included to the firm's website so that users could examine the openings in the company and apply directly from a distance. The administrator will list the openings in accordance with the company's requirement for personnel. The admin will have all rights of handling this process except the evaluation process as it is the company specific and so the steps of the evaluation process cannot be predicted. It also includes the layers at the admin side so the privileges will have great impact on the functionalities given to the different levels of admin. The privileges will be user specific, so different admin even at same level will have different privileges and so different functionalities. The higher level admin can approve or disapprove the request. Whatever the result of the request approval, the notification will be sent to the lower level admin. This project plays main role at admin side for recruitment process. Main aim of this project is to provide an online job search portal for fresher's and experience employees for knowing about opportunities in different companies.

Keywords : Human Intelligent Tasks, Chromatic Correlation Clustering, deduplication process, Label Assignment Module (LAM), Pair Identification and Annotation Module (PIAM), Workers Performance Management Module (WoPM)

IOT-BASED AIR POLLUTION MONITORING AND FORECASTING SYSTEM

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Abstract - One of the most important issues of our day is global air pollution. A number of factors, including population growth, improved vehicle use, industrialization, and urbanization, have contributed to an increase in pollution levels throughout time, which has a negative impact on human wellbeing by adversely affecting the health of those exposed to it. When the air contains enough dangerous gases including carbon dioxide, smoking, alcohol, benzene, NH3, and NO2, air quality suffers. We are building an IOT-based pollution monitoring system that will allow us to track the air quality online in order to conduct analysis. Current monitoring techniques need laboratory analysis and have poor precision and sensitivity. As a result, better monitoring methods are required. We suggest a three-phase pollution monitoring method to address the problems with current systems. The air quality will be displayed on the LCD and on a website in PPM so that we can easily monitor it. With this IOT project, you may use a computer or mobile device to check the pollution level from anywhere. The MQ2 and MQ7 sensors are used by the system to measure air quality. It precisely measures their presence and identifies dangerous gases.

Keywords: IoT, Smart Device, Pollution, Monitoring

A NOVEL AUTHENTICATE ROUTING WITH SECURE KEY GENERATION SCHEME FOR WIRELESS SENSOR NETWORKS

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Abstract-One type of active eavesdropping operations carried out by a malicious user during the channel training phase is the pilot spoofing attack. Such an attack can trick the channel estimation process into giving the adversary a higher channel rate while giving the legitimate receiver a lower channel rate by transmitting the same pilot (training) signals as the legal users. Adversaries in wireless sensor networks can execute DoS attacks on legitimate reports and insert fraudulent data reports through infected nodes. Many filtering strategies against bogus reports have recently been put out. However, they are either weak in filtering or poorly able to support extremely dynamic sensor networks. Few of them can also defend against DoS attacks concurrently. In this project, we provide a dynamic en-route filtering system that defends against DoS attacks as well as fake report insertion in wireless sensor networks. A valid report must be validated by a specific number of nodes in our system, and each node has a hash chain of authentication keys that it uses to endorse reports. Each node first shares its key with the forwarding nodes. The sending nodes then reveal their keys after delivering reports, enabling the forwarding nodes to confirm the reports. The Hill Climbing key dissemination strategy is created with the goal of maximizing the filtering power of the nodes closest to the data sources. In addition, we use wireless communication's broadcast feature to counter DoS attacks and multipath routing to deal with sensor networks' changing topologies.

Keywords: DoS attacks, Dynamic en-route filtering, false report injection, wireless sensor networks.

SECURE SHARING AND PRIVACY PRESERVING OF PERSONAL HEALTH RECORD IN DATA MINING

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Abstract-In order to provide quick access to data resources on the Web, Data as a Service (DaaS) builds on service-oriented technologies. This paradigm, however, introduces a number of fresh privacy issues that conventional privacy models are unable to address. DaaS composition may also make private information available. In this work, suggest a formal privacy model to add privacy features to DaaS descriptions. A service can specify a privacy policy and a list of privacy requirements using the privacy model. Additionally, we provide a DaaS composition method that protects privacy and enables users to confirm that privacy standards and rules are compatible. When incompatibilities occur in a composition, we provide a negotiation approach that enables dynamic reconciliation of the privacy capabilities of services. Through the use of an experimental set and a prototype implementation, we confirm the applicability of our suggestion.

Keywords: *Privacy-Aware Service Composition, Negotiating Privacy in Service Composition, Data Base Management System, DaaS composition approach*

ENSURING DATA SECURITY IN CLOUD USING AN EFFICIENT MERKEL BASED DATA AUDITING PROTOCOL

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Abstract-Users could benefit from a variety of conveniences with the widespread adoption of cloud storage, including affordable remote data storage and adaptable data sharing. Numerous cloud auditing systems are put forth to guarantee the security and integrity of shared data because Cloud Service Providers (CSPs) are not fully trusted. In order to solve the aforementioned issue, researchers created an effective sampling verification algorithm. The auditing scheme is further optimized based on this methodology, and a dynamic auditing function has been created for the scheme to make it easier for data owners to update data. However, there are some security issues with the current cloud auditing techniques, including user identity leak, denial of service attacks, and single-manager power abuse. In this study, we suggest Merkel-based Message Authentication Codes (MACs), which can aid in the full establishment of the fledgling cloud economy by enabling publicly auditable cloud data storage. With public auditability, a reliable organization that possesses the knowledge and skills that data owners lack can be designated as an external audit party to evaluate the risk of outsourced data as needed. Such an auditing service offers data owners a visible yet affordable way to build confidence in the cloud, in addition to saving data owners' compute resources. As a result, we improved the Owner's and the cloud server's interaction in this notion. We describe approaches and system requirements that should be brought into consideration, and outline challenges that need to be resolved for such a publicly auditable secure cloud storage service to become a reality.

Keywords: MAC, CSP, TPA

HEALTH MONITORING OF MULTIPLE PHYSIOLOGICAL PARAMETERS IN PATIENTS BASED ON IOT WIRELESS REMOTE MEDICAL SYSTEM

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Abstract-The exchange and monitoring of telemedicine information can be effectively realized by telemedicine as a new technical tool and medical paradigm, which will ultimately guarantee that everyone has equitable access to medical and health resources. This study presents a multi-physical parameter wireless telemedicine health monitoring system solution and evaluates the system's overall structure and functional needs on the basis of research on the state of telemedicine application and wireless communication technology. The wireless remote medical system for health monitoring uses human physiological data such as body temperature, respiration, blood oxygen saturation, pulse, blood pressure, and ECG. In this work, the impact of mobile computing on the effectiveness and efficiency of emergency medical services is examined. One of the most desirable targets for Internet of Things (IoT) applications right now is the healthcare industry. For instance, a health monitoring application enables medical staff in a hospital or clinic to continuously monitor patients who are equipped with small, wearable sensors that can gather sensitive, important health information in real-time. The sensors are often used to track a variety of global parameters, including electrocardiograms (ECG), blood pressure, pulse rate, temperature, and blood oxygen levels. The primary goal is to provide patients with rapid care as quickly as possible utilizing mobile computing technology, keeping them alive thanks to the prompt action. This work can be implemented in In-hospitalization and other areas outside of disaster response.

Keywords: IOT, ECG

PARALLEL MINING OF FREQUENT ITEMSETS USING MAPREDUCE

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Abstract-There is currently no automatic parallelization, load balancing, data dissemination, fault tolerance mechanism for frequent item sets in parallel mining algorithms. We use the MapReduce programming model to create the parallel frequent item sets mining algorithm FiDoop as a solution to this issue. FiDoop uses the frequent items ultra metric tree in place of conventional FP trees to achieve compressed storage and avoid creating conditional pattern bases. Three MapReduce jobs are implemented in FiDoop to finish the mining work. In the essential third MapReduce task, the mappers independently break down item sets, the reducers combine them using tiny ultra metric trees, and the mappers independently mine these trees. FiDoop is put into use on our own data cluster. Because item sets with varying lengths have different decomposition and construction costs, we demonstrate how FiDoop on the cluster is sensitive to data distribution and dimensions. We create a workload balance metric to assess load distribution among the cluster's computational nodes in an effort to boost FiDoop's performance. In order to improve the mining performance for high-dimensional data analysis, we create FiDoop-HD, an extension of FiDoop. Numerous tests using actual celestial spectral data show that our suggested method is effective and Scalable.

Keywords: FiDoop, FIM, API, CAD FP, NASA,NHL

A MAXIMUM RESIDUAL ENERGY BASED MULTICAST PROTOCOL FOR LARGE-SCALE NETWORKS USING AN NOVEL APPROACH

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Abstract-The prevalence of mobile devices has made routing issues extremely difficult. In situations where network topologies and data traffic may change quickly and unpredictably, this study focuses on power-aware routing. Assuming that no node is effectively maintaining any global information, we suggest a distributed method and its realization to maximize the minimal residual energy of all the nodes for each multicast. On demand, a transient multicast tree is built based on the independent choices made by intermediate nodes. We demonstrate that the generated tree is theoretically the best for maximizing the minimal residual energy and is loop-free. A number of simulations were used to test the suggested protocol's performance over Java and the results are quite positive.

Keywords: TCP/IP, URL, HTTP, API, JDK,DDM

IMAGE PROCESSING TECHNOLOGY IN AGRICULTURE

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Abstract-The development of agriculture in China has been substantially aided by the development of image processing technologies. It is simple for people to comprehend the significance of image processing technology for agricultural development by presenting the application status of image processing technology in agriculture and its impact on agricultural production value. This research examines how image processing technology is used in agriculture on the basis of that information. Firstly, this paper analyzes theapplication of image processing technology in agricultural field. Secondly, in order to highlight the application effect of image processing technology in agricultural field, this paper applies image processing technology and traditional machine recognition technology to crop pest detection, and analyzes their effects. The results showed that the recognition rate of the traditional machine recognition technology was 65%, 71%, 74%, 63%, 64% and 62% respectively. The results show that the recognition rate of this method is 86%, 89%, 91%, 83%, 78% and 79%, respectively. It can be seen that the detection method of image processing technology is better in the detection of crop diseases and insect pests.

Keywords: Image Processing Technology, Agricultural Field, Crop Pest Detection, Application Status

AN INGENIOUS STRATEGY FOR CREDIT CARD FRAUD DETECTION

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Abstract-The identification of credit card fraud is the most common problem in the modern day. The growth of e-commerce platforms and online transactions is to blame for this. Credit card fraud typically takes place when a card is stolen and used for any unauthorized activity, or even when a fraudster uses the card's information for his own gain. In the present world, there are numerous credit card problems. To spot fraudulent behavior, credit card fraud detection technology was developed. This project's main area of interest is machine learning algorithms. Both the Random Forest and Adaboost algorithms are used. The results of the two algorithms are based on many criteria such as F1-score, accuracy, precision, recall, and more. On the basis of the confusion matrix, the ROC curve is plotted. Comparing the Random Forest and Adaboost algorithms, the method with the highest accuracy, precision, recall, and F1-score is regarded as the ideal approach for use in fraud detection.

Keywords - ROC curve, Random Forest, Adaboost, illegal.

INTERNET OF THINGS BASED SMART HEALTHCARE MONITORING SYSTEM

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Abstract-The Internet of Things in healthcare is a crucial player in delivering improved medical facilities to people as well as helping doctors' offices and hospitals. The suggested system is made up of a number of medical devices, including sensors and web-based or mobile applications, which communicate with one another across a network and are used to track and store patient health-related data and medical information. The goal of the proposed study is to create a system that would deliver top-notch medical care to patients in the most remote regions devoid of hospitals. By connecting to the internet in their locality and using the given wearable devices from the kit to learn about their current health status. Using a raspberry pi microcontroller, the patient's heart rate and blood pressure were recorded. The system would be very smart to intimate the patient's family members and their doctor about the patient's current health status and full medical information in case any medical emergency arises. The collected information can be used to analyze and predict chronic disorders or other diseases such as heart attacks in preliminary stage. The data mining techniques will provide the approach for decision making.

Keywords: Internet of Things, IoT in Healthcare, Patient Monitoring, Raspberry Pi, Smart Health Monitoring.

DATA STORAGE SECURITY IN CLOUD COMPUTING

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Abstract- Cloud computing offers its clients on-demand services. One of the main services offered by cloud computing is data storage. The server of a cloud service provider hosts the data of the data owner. From these servers, the user can access their data. Take data as an example. Since the owners and servers have separate identities, the paradigm of data storage presents numerous security issues. To ensure that data is correctly hosted in the cloud storage server, a separate technique is necessary. Discuss the various methods used for cloud data storage security in this essay.

Keywords : Cloud computing, Data storage, Cloud storage server.

CONCEALED WEAPON DETECTION BY IMAGE PROCESSING

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Abstract-The improvement of public safety, including the security of public assets like airports and buildings, is hampered by the identification of weapons concealed beneath a person's clothing. In places with controlled entry, such as airports, the entrances to sensitive facilities, and public events, manual screening processes for spotting concealed weapons, such as handguns, knives, and explosives, are prevalent. When it is unable to direct the flow of individuals through a planned procedure, it is occasionally useful to be able to spot concealed weapons from a standoff distance. The United States' Air Force Research Laboratory was in charge of the concealed weapon detection (CWD) program, which was launched in 1995 to solve this issue. It was sponsored by the National Institute of Justice. The ultimate objective is the deployment of automatic concealed weapon detection and recognition. It is a technological challenge that calls for cutting-edge image processing and sensor technology. The issue also poses difficulties on a legal level. To view objects under people's clothing, a variety of sensors based on various phenomenology's are being developed, together with image processing support.

Keywords: Concealed Weapon Detection (CWD), image processing, passive millimeter wave imaging sensors

PRIME LABELING OF SOME SPLIT GRAPH AND SOME COMBINATION GRAPHS

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Abstract-If the vertices of a graph H = (V, E) with p vertices may be labeled with specific positive numbers that do not exceed p so that the marks of any pair of adjacent vertices are relatively prime, the graph is said to concede prime labeling. A prime graph is one where H concedes prime labeling. In this study, we investigate graph classes' prime labeling. In particular, we discussed the prime labeling of the split graphs of the ladder, brush and gear graphs (Lp, Bp, and Gp). Similarly, we looked at several combination graphs' prime labeling.

Keywords: Ladder graph, Brush graph, Gear graph, Spider graph, Prime labeling, Split graph

A SURVEY OF DDOS ATTACK DETECTION SYSTEM:TECHNIQUES,CHALLENGES AND DATASETS

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Abstract-Cloud computing offers services on demand through the Internet with the aid of a sizable quantity of virtual storage. The primary profits of cloud computing include lower service prices and the lack of requirement for users to set up luxurious computer equipment. The fast combination of cloud computing with commercial and many other areas has encouraged researchers to look at new, related technologies. Individual organizations and users their applications, data, and facilities to the cloud storage server due to the accessibility of its services and scalability for computing activities. Despite the benefits, moving from local to remote computing has formed several security concerns and difficulties for both customers and service providers. The cloud service provider employs several web technologies that increase new security fears to deliver its facilities over the Internet. The most dangerous security problem is the DDoS attack in cloud computing, which attempts to block genuine users from retrieving a target system or network by flooding it with traffic. Hence, the article discusses the fundamentals of cloud computing, its types, security issues, DDoS attacks, and its types and detection approaches with datasets and performance measures. Finally, the challenges of cloud computing are also discussed.

Keywords: Cloud Computing, Security analysis, Distributed Denial of Services (DDoS), Deep learning, Artificial Intelligence

CYBERSECURITY DURING COVID - A REVIEW

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Abstract- COVID 19 has made a serious impact on the cyber world as it has made on the life of human beings. The COVID has paved a way organizations and people in order to do what they want to do to be paid. It has put forward new challenges for cyber security to solve. It first gives a detailed view on the breaches, exploits happening in the last few years and gives a brief suggestion on how to prevent these attacks before happening.

Keywords: Botnet, COVID 19, Cyber Security, Phishing, Ransomware

CLOUD CLASSES ANALYSIS FROM SATELLITE DATAUSING RANDOM FORESTALGORITHM

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Abstract- Clouds play a key role in regulating climate change but are difficult to simulate within Earth system models (ESMs). Improving the representation of clouds is one of the key tasks toward more robust climate change projections. This study introduces a new machine-learning-based framework relying on satellite observations to improve understanding of the representation of clouds and their relevant processes in climate models. The proposed method is capable of assigning distributions of established cloud types to coarse data. It facilitates a more objective evaluation of clouds in ESMs and improves the consistency of cloud process analysis. The method is built on satellite data from the Moderate Resolution Imaging Spectroradiometer (MODIS) instrument labeled by deep neural networks with cloud types defined by the World Meteorological Organization (WMO), using cloud-type labels from CloudSat as ground truth. The method is applicable to datasets with information about physical cloud variables comparable to MODIS satellite data and at sufficiently high temporal resolution. We apply the method to alternative satellite data from the Cloud_cci project (ESA Climate Change Initiative), coarse-grained to typical resolutions of climate models. The resulting cloud-type distributions are physically consistent and the horizontal resolutions typical of ESMs are sufficient to apply our method. We recommend outputting crucial variables required by our method for future ESM data evaluation. This will enable the use of labeled satellite data for a more systematic evaluation of clouds in climate models.

Keywords: MODIS, WMO, ESA, ESM

A SURVEY OF THE APPLICATIONS OF ARTIFICIAL INTELLIGENCE IN INDIAN AGRICULTURE

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Abstract-Agriculture plays an important role in the economic sector for all country. Artificial Intelligence (AI) has developed into one of the most important technologies in each sector, including education, banking, robotics, agriculture, etc. In the agriculture sector, it is playing a very vital role and it is transforming the agriculture industry. AI also serves in the agriculture sector like predict climate change, assures high yield and reduces employment issues and food safety. Today's agriculture system in India has reached at a different level due to AI. Artificial Intelligence has enhanced crop production and real-time monitoring, harvesting, processing and marketing. Different hi-tech computer-based systems are designed to conclude various important factors such as weed detection, crop disease detection, crop quality and many more.

Keywords: *Artificial Intelligence, Applications of AI, crop production, weed detection, crop disease detection, Agriculture.*

FUZZY CONVOLUTIONAL NEURAL NETWORK BASED SIGN LANGUAGE PREDICTION SYSTEM

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Abstract- In the broader application area of hand gesture recognition (HGR) in human-computer interaction, sign language recognition (SLR) plays a significant role. There are many methods that have been developed in the past for sign language prediction. Skeleton aware Multi-modal SLR Framework (SAM-SLR), a methodology for sign language recognition, has been used in the existing work. However, the proposed research methodology improves upon the existing research work's accuracy and computer overhead. The Fuzzy Convolutional Neural Network based Sign Language Prediction System (FCNN-SLPS) is presented in the proposed research work for the accurate sign language prediction outcome.

Keywords: Fuzzy convolutional neural network, Sign language prediction, noise removal, segmentation, textual perceptual descriptor, feature extraction

STUDY ON LATEST DEVELOPMENTS IN NETWORKING AND THEIR IMPERATIVE ROLE IN REAL-TIME ENVIRONMENT

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Abstract-The sharing and transmission of information in real-time situations has undergone a revolution due to the quick improvements in networking technologies. This essay discusses recent advancements in networking and emphasizes how crucial they are to providing real-time services and applications. Real-time data transmission has increased dramatically as a result of the introduction of high-speed broadband connections, the general adoption of wireless networks, and the proliferation of Internet of Things (IoT) devices. These innovations have enabled seamless phone, data, and video interchange across a range of sectors, including telecommunications, finance, healthcare, and transportation. The emergence of low-latency networks is a key component of recent advancements in networking. These networks improve user experiences by reducing the time used for data packets to transfer, assuring real-time responsiveness. Real-time applications may now flourish thanks to the emergence of technologies like 5G, edge computing, and content delivery networks (CDNs), which have further optimized network performance and decreased latency. Additionally, the development of network function virtualization (NFV) and software-defined networking (SDN) has increased the flexibility and scalability of controlling network resources. SDN enables dynamic network setup and control, facilitating effective traffic management and real-time traffic prioritization. On the other side, NFV virtualizes network functions, minimizing hardware dependence and allowing for rapid real-time service provision. Furthermore, intelligent network management and optimization have been made possible by the integration of artificial intelligence (AI) and machine learning (ML) techniques in networking. AI and ML algorithms can analyze network traffic patterns, predict network congestion, and dynamically allocate resources to meet real-time demands. This enables efficient utilization of network resources, enhanced network security and improved overall performance.

Keywords: Networking, Real-time environment, Internet of Technologies, content delivery networks, Software-defined networking, Network function virtualization, Artificial Virtualization, Machine Learning

TOWARDS IOT IN 5G AND 6G

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Abstract - Internet of Things (IoT) has changed the pervasive measure including a large collection of built-up applications covering different sensor types. A recent statistics released by International Data Corporation (IDC), 5G will drive 70% of companies across the world to spend $1.2billion on connectivity solutions. IOT enables interaction between humans and appliances /devices by sensing or remotely controlling these devices resulting in improved efficiency, accuracy, reduced human efforts and maximum comfort. 5G's model is IP based architecture and is being designed for mobile as well as wireless networks. The advantages of 5G over the former wireless technologies are humungous; ultra-high speed ranging from 1 to 10 Gbps; 6G communications are expected to raise the bar currently set by 5G communications with the provision of enhanced services from the perspectives of network data availability, mobile data rate, and seamless ubiquitous connection. In addition, 6G communications will utilize an unusual communication approach to gain acceptance to various mobile data categories and send them via traditional enhanced radio-frequency networks. 6G will emerge as the sixth generation of wireless communications succeeding the 5G wireless technology, which is still untapped in many countries.

Keywords: IoT, 5G,6G,Gbps,Communications,Features,Vision,networks

TEXT CLASSIFICATION USING NATURAL LANGUAGE PROCESSING

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Abstract-Text Classification is an approach used for classifying the text documents known as text tagging or text categorization. It is the process of categorizing text into organized groups. It consequently scrutinizes the text by utilizing Natural Language Processing (NLP). By using machine learning algorithms for text classification pre-trained models are used to label and categorize raw text data into predefined categories for predicting the category of unknown text. Many algorithms are used for the classifying the text, but the accuracy varies from algorithm to algorithm. This article deals with most popular algorithms for text classification are Support Vector Machines, Naive Bayes Classifier, XGBOOST and K Nearest Neighbour. The algorithms can be choosing that increase the overall classification performance to meet high precision requirements.

Keywords: text mining, learning algorithms, Text Classification

DECODING SURVIVAL: UNLEASHING THE POTENTIAL OF MACHINE LEARNING PROGNOSTIC MODELS TO PREDICT POST-OPERATIVE LIFE EXPECTANCY IN LUNG CANCER PATIENTS - A COMPREHENSIVE SYSTEMATIC REVIEW AND META-ANALYSIS

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Abstract-Accurate prediction of post-operative life expectancy is crucial in the management and counselling of lung cancer patients. Machine learning algorithms have shown promise in developing prognostic models that can provide personalized predictions. This systematic review and meta-analysis aim to critically evaluate the existing literature on machine learning-based approaches for estimating post-operative life expectancy in lung cancer patients. We discuss the various methodologies employed, including data collection, feature selection, model development, and performance evaluation. Additionally, we assess the overall performance and clinical applicability of these models, identify common limitations, and provide recommendations for future research directions. The review begins with an exploration of data collection and pre-processing techniques, encompassing the identification of relevant clinical data sources, selection of meaningful features, handling missing values, and employing techniques for data balancing and scaling. Subsequently, we delve into the various machine learning algorithms employed in survival prediction, including decision trees, random forests, support vector machines, neural networks, ensemble methods and deep learning architectures. We discuss their underlying principles, advantages and considerations for their application in the context of post-operative survival prediction.

Keywords: Lung Cancer and Post-Operative Life Expectancy, Prognostic Models

A STUDY OF DEEP LEARNING FOR SENTIMENT ANALYSIS IN SOCIAL NETWORKS

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Abstract-Sentiment analysis is a technique for determining people's attitudes, feelings, and emotions about a particular aim, such as people, activities, organizations, services, subjects, or items. Because of the Internet's rapid proliferation, social networking platforms have become a crucial means of sharing feelings to the entire world. Several people convey their feelings or points of view through writing, images, audio and video. Text communication through Web-based networking media, on the other hand, might be overwhelming. A vast amount of unstructured data is generated on the Internet every second as a result of social media sites. To comprehend human psychology, data must be processed as quickly as it is generated, which can be performed using sentiment analysis, which recognizes polarity in texts. It determines if the author holds a negative, good or neutral attitude toward a particular thing. In recent years, sentiment analysis has been a popular application for deep learning. This paper initially provides an overview of deep learning before conducting a thorough investigation of the ways it is currently being used in sentiment analysis.

Keywords: Sentiment analysis, Deep learning, Social networks

REVIEW ON EXPLORING THE LANDSCAPE OF QUANTUM MACHINE LEARNING

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Abstract- Quantum Machine Learning (QML) is an emerging discipline that leverages the principles of quantum mechanics to revolutionize traditional machine learning paradigms. At its core lies the concept of qubits, the quantum counterparts of classical bits, which can exist in multiple states simultaneously. This extraordinary property allows QML algorithms to explore vast solution spaces efficiently and tackle complex computational challenges that defy classical methods. We explore the fundamental aspects of quantum data representation, quantum feature mapping, and quantum-inspired algorithms. Furthermore, we discuss the symbiotic relationship between classical and quantum machine learning through current approaches QML, The abstract also highlights the current state-of-the-art applications of Quantum Machine Learning, ranging from quantum-enhanced optimization and quantum chemistry simulations to quantum artificial intelligence and secure quantum communication. Ultimately, this abstract serves as a gateway to the captivating realm of Quantum Machine Learning, inviting researchers, scientists, and technologists to embark on a journey of exploration and innovation in this groundbreaking field, with the promise of unveiling the true potential of quantum QML is shaping the future of artificial intelligence.

Keywords: QML, qubits, quantum, parallelism, speed, accuracy, optimization, quantum algorithms.

BIOINSPIRED GRAY WOLF OPTIMIZATION FOR ENERGY HARVESTING IN PURE ELECTRIC VEHICLES

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Abstract-This research aims to evaluate the factors influencing the performance evaluations of the Energy Management System (EMS) in Low-Emission Vehicles (LEVs), specifically focusing on vehicle speed, power load, and various source loading scenarios. The validation of the developed model includes assessing the EMS performance using the ECE-47 drive cycle, which is commonly employed to evaluate the functionality and pollutant emissions of mopeds and electric scooters. The findings reveal a close alignment between the ECE-47 test drive cycle and motor speed, except during gear shifting periods. This paper explores the utilization of a bio-inspired control algorithm to enhance the performance of light electric vehicles (LEVs) in the context of next-generation mobility. LEVs are poised to play a pivotal role in the advancement of future transportation systems. The integration of solar parking lots offers an eco-friendly alternative to traditional fossil fuel-based electricity, enabling users to leverage renewable energy sources. Moreover, this sustainable approach raises the bar for urban livability standards. The energy management system (EMS) of LEVs assumes a critical role in supporting various charging components, including primary and secondary chargers, in addition to the battery charger. Control techniques serve as the fundamental building blocks of the vehicle's architecture, enabling effective implementation and management of multiple sources of information. Through the proposed control algorithm, this research demonstrates the feasibility of optimizing LEV performance and ensuring efficient utilization of available energy resources.

Keywords: Energy Harvesting System, Multi-Sources Model, Control Algorithm, EV, LEV

IMAGE PROCESSING BY PARTIAL DIFFERENTIAL EQUATIONS AND INVARIANTS

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Abstract - Image Processing is a very important one of the current years. Image Processing is used in many areas like images passes in one area to another area in Military, Traffic Signals, Animals and Birds behaviors in Zoos, Photography, Photo clearance, etc. Partial Differential Equations have been successfully solving many problems in image processing and computer sides.

Keywords: Aeolotropic Diffusion, Energy Functional, Blurring an Image, Indicator function, Lie Group, Linear Combination, Image Segmentation, Edge Detection

THE ROLE OF INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) IN HIGHER EDUCATION SECTOR

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Abstract- The purpose of this paper is to emphasise the importance of ICT in higher education in the twenty-first century. The study specifically argues that although ICTs have had a relatively minor impact on educational practise to date, that impact will rise significantly over the next several years and that ICT will become a powerful force for change across a wide range of educational activities. The report clearly shows that ICT use in education is rising quickly across different Indian states. Making decisions based on technological possibilities rather than educational needs is one of the most frequent issues when employing information and communication technologies (ICTs) in education. There is growing demand to ensure that technological potential are examined in the context of educational needs in developing nations where higher education is beset with major issues at numerous levels. ICT in education encourages more student-centered learning environments, which frequently causes friction between some professors and students. But as the world quickly transitions to digital media and information, the importance of ICT in education is only going to increase over the course of the twenty-first century. As a result, the article contends that ICT in higher education not only contributes to educational advancement but also to the country socioeconomic development.

Keywords: E-learning, ICT, Online education, Higher education