



1ST International Conference on IOT-AI & ML in Information Technology

VIRTUAL CONFERENCE

IOT-AI & ML-2022

30th - 31st March 2022

Actual vs Target

Organized By

Institute For Engineering Research and Publication (IFERP)



1st International Conference on IOT-AI & ML in Information Technology



**PANIPAT INSTITUTE OF
ENGINEERING & TECHNOLOGY**
(Approved by AICTE, New Delhi & Affiliated to Kurukshetra University, Kurukshetra)



**VISHWATMAK OM GURUDEV
COLLEGE OF ENGINEERING**

30th & 31st March 2022

Virtual Conference

Organized by

Institute For Engineering Research and Publication (IFERP)

Co-Hosted by

Panipat Institute of Engineering and Technology, Haryana &
Vishwatmak Om Gurudev College of Engineering, Maharashtra

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IFERP-Explore

Editorial

We cordially invite you to attend the **1st International Conference on IOT-AI & ML in Information Technology** (Virtual Conference) which will be held on **30th-31st March, 2022**. The main objective of this conference is to provide a platform for researchers, students, academicians as well as industrial professionals from all over the world to present their research results and development activities in relevant fields of Engineering, Science and Management. This conference will provide opportunities for the delegates to exchange new ideas and experience face to face, to establish business or research relationship and to find global partners for future collaboration.

These proceedings collect the up-to-date, comprehensive and worldwide state-of-art knowledge on cutting edge development of academia as well as industries. All accepted papers were subjected to strict peer-reviewing by a panel of expert referees. The papers have been selected for these proceedings because of their quality and the relevance to the conference. We hope these proceedings will not only provide the readers a broad overview of the latest research results but also will provide the readers a valuable summary and reference in these fields.

The conference is supported by many universities, research institutes and colleges. Many professors played an important role in the successful holding of the conference, so we would like to take this opportunity to express our sincere gratitude and highest respects to them. They have worked very hard in reviewing papers and making valuable suggestions for the authors to improve their work. We also would like to express our gratitude to the external reviewers, for providing extra help in the review process, and to the authors for contributing their research result to the conference.

Since January 2022, the Organizing Committees have received more than 90 manuscript papers, and the papers cover all the aspects in Engineering, Science and Management. Finally, after review, about 62 papers were included to the proceedings of **IOT-AI & ML -2022**.

We would like to extend our appreciation to all participants in the conference for their great contribution to the success of **IOT-AI & ML -2022**. We would like to thank the keynote and individual speakers and all participating authors for their hard work and time. We also sincerely appreciate the work by the technical program committee and all reviewers, whose contributions made this conference possible. We would like to extend our thanks to all the referees for their constructive comments on all papers; especially, we would like to thank to organizing committee for their hard work.

Acknowledgement

IFERP is hosting the **1st International Conference on IOT-AI & ML in Information Technology (IOT-AI & ML-2022)** this year in month of March. The main objective of ICAESM-2021 is to grant the amazing opportunity to learn about groundbreaking developments in modern industry, talk through difficult workplace scenarios with peers who experience the same pain points, and experience enormous growth and development as a professional. There will be no shortage of continuous networking opportunities and informational sessions. The sessions serve as an excellent opportunity to soak up information from widely respected experts. Connecting with fellow professionals and sharing the success stories of your firm is an excellent way to build relations and become known as a thought leader.

I express my hearty gratitude to all my Colleagues, staffs, Professors, reviewers and members of organizing committee for their hearty and dedicated support to make this conference successful. I am also thankful to all our delegates for their pain staking effort to make this conference successful.



Er. R. B. Satpathy
Chief Executive Officer
Institute for Engineering Research and Publication (IFERP)

Keynote Speaker



Fredrik Hofflander

Head of AI at AFRY
Chair of the Technical board at AI Center
Sweden

Message

It is a great honor to be part of the very noticeable group of keynote speakers at the 1st International Conference on IOT-AI & ML in Information Technology (AI&ML-22). I am very thankful to the Institute for Engineering Research and Publication (IFERP) has recognized and invite me to this event.

One of our big fateful questions is how we can stop global warming. It is a global problem that requires a global solution and for all countries in the world to come together and cooperate. No one can do everything, but everyone can do something.

The solution will be a mix of technical development, political influence, and changed behavior. What I have intended to tell you about is based on all these three parts and points out how we with the help of technological development can reduce our climate impact, get an improved experience while we also change our behavior completely voluntarily.

Thanks and Regards,

Fredrik Hofflander

Keynote Speaker



Dr. Raziq Yaqub

Associate Professor
Electrical Engineering and Computer Science
Alabama A&M University, Huntsville, Alabama

Message

I feel honored to be invited as a keynote speaker at the 1st International Conference on IOT-AI & ML in Information Technology(AIML-22). I express my sincere appreciation to the Institute for Engineering Research and Publication (IFERP) for taking concrete steps in organizing intellectual activities leading to disseminating the knowledge. It is an excellent service to the nation and the entire world, for which the organizers, committees, and facilitators deserve congratulations.

Though Covid-19 was a pandemic on the one hand, on the other hand, it took the culture of webinars to the next step that vanished the barriers among researchers and scientists around the globe to join and present their findings to their peers. Though virtual, I am confident that this international conference will bring several critical issues to the table and discuss their possible solutions. I sincerely believe that the conference will provide networking opportunities and a platform for students, professors, researchers, and decision-makers to establish collaborations and promote Research and Innovation in Science, Technology, and Management.

Finally, I want to extend my sincere gratitude to IFERP, the conference organizer, and all those behind the stage for making this remarkable event a great success. I am also thankful for making me part of this reputed event. I feel honored to offer my support for collaborative research, cross-institutional online teaching, and joint services to the institutions.

I wish all presenters and participants good luck having a fruitful and enjoyable conference.

A handwritten signature in black ink, appearing to read 'Raziq Yaqub'. The signature is stylized with a large, looping initial 'R'.

(Raziq Yaqub)

1st International Conference on IOT-AI & ML in Information Technology

**30th & 31st March 2022
Virtual Conference**

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Design and Development of Framework to Reduce Risk of Diabetic using Machine Learning

Saroj Kumar Gupta, Madhyanchal Professional University, Bhopal, India

Dr. Rajesh Kumar Boghey, Madhyanchal Professional University, Bhopal, India

Sarita Kumari, Banasthali Vidyapith, Rajasthan, India

Abstract

Diabetic is an unpredictable dangerous disease spreading relentlessly in the world and its risk factors are massive. In this research paper, we are discussing about how to design and develop a framework model with the clinical dataset which is collected by different survey and by the hospitals path labs and can be predicted diabetic of type-1, type-2 and pre-diabetic along with the risk factor involved in future.

Machine learning techniques helps to predict diabetic of person and gives the adequate solutions to Doctors, which may help to diagnose with good medicines, clinical test and hospitality.

Support vector machine (SVM) used to produce significant accuracy with less computability in N-dimensional space which distinctly classifies the data points. Hyper planes are decision boundaries used to identify the margins of the data set from the plan. Cost function and gradient helps SVM strong through which to find margin between plane and data sets.

Data sets are trained and given to algorithm to find the prediction, once the diabetic are predicted and confirmed based on clinical data, symptoms complete solution is provided by this research techniques by registering patient, step wise solution is provided by this system like testing, consultation with Doctor, prescribed medicine by Doctor.

For only this presentation only SVN will be used but futher there will be sequence of all algorithms which will be used to design generalized model. We are using Python programming for backend coding and with many libraries like matplotlib, pyplot etc. for data analytics panda and for front end using CSS. Idea is right to reserve by the author. This is ongoing research so must not be copied/duplicated.

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A Review of Sign Language Classification Techniques

Vinothini A, Computer Science and Engineering Department, Rajalakshmi Engineering College, Chennai, India

Prathiksha M, Computer Science and Engineering Department, Rajalakshmi Engineering College, Chennai, India

Padmashree J, Computer Science and Engineering Department, Rajalakshmi Engineering College, Chennai, India

Abstract

The goal of this study is to conduct a comparative experimental evaluation of computer vision-based techniques for sign language recognition. A thorough experimental investigation has been carried out by looking at the most promising machine learning and deep neural network approaches in this field. Each of the papers in this study has its own set of advantages and disadvantages. Hand gestures are the most popular means of communication for the speech and hearing-impaired population to transmit their thoughts to regular people in public places, and the ordinary community finds it difficult to interpret the conveyed information. This problem can be solved by developing a real-time hand gesture recognition system that converts sign language to text on a word-by-word basis. Vision-based sensors, motion-based sensors, image recognition techniques, object detection algorithms, and other methods are used to accomplish this. The goal of this study is to focus on various methods for classifying sign language.

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Third Eye for Visually Challenged using Ultrasonic Sensor

Harini Induri, Gokaraju rangaraju institute of Engineering and Technology, Hyderabad, India

M. Shivani, Gokaraju rangaraju institute of Engineering and Technology, Hyderabad, India

P. Mounika, Gokaraju rangaraju institute of Engineering and Technology, Hyderabad, India

J. Deepika, Gokaraju rangaraju institute of Engineering and Technology, Hyderabad, India

Abstract

In world, there are many people who is not having perfect vision and they wear glasses according to their eye sight. But there are also thousands of people who are blind and need assistance of blind sticks or from people, pets. The blind stick may break or split easily and can be misplaced. Whereas training of pets is costly and coordination with them may become perplexing. There are many existing techniques to assist blind but they do not support completely.

Our project is to design a wearable prototype using various sensors which are interfaced with Arduino uno. The sensors like ultrasonic sensor and moisture sensor are used for obstacle and water detection. The person is alerted by playing a recorded sound through headset. We have also used GPS for tracking his location and GSM for sending messages to his family when he is in trouble by just one click. Hence, the blind people need not to carry their stick always instead they can simply wear the designed prototype. This project gives a hope for blind to proceed with greater confidence.

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Software Metric Based Defect Prediction Using Mining Classification Algorithms

Rajeev P R, Research Scholar, Department of Computer Science, Adaikalamatha College, Thanjavur, India

Dr. K. Aravinthan, Assistant Professor, Department of Computer Science, Adaikalamatha College, Thanjavur, India

Abstract

Software development is rapidly increasing. For some reasons, the software has many defects. In the development of software testing, each software module is the main stage to reduce software defects. If developers or testers can correctly predict software defects, they can reduce costs, time, and effort. This paper presents a comparative study of existing methods in software defect prediction based on classification rule mining. He proposed a method for this process and chose different classification algorithms. In this analysis, historical data sets, such as NASA's MDP data set, are used to predict the performance of software defects. The results of this method show that, compared with different algorithms based on classification rules, different data sets are extracted.

Keywords

Classifier, confusion matrix, defect prediction, rule mining, software measurement

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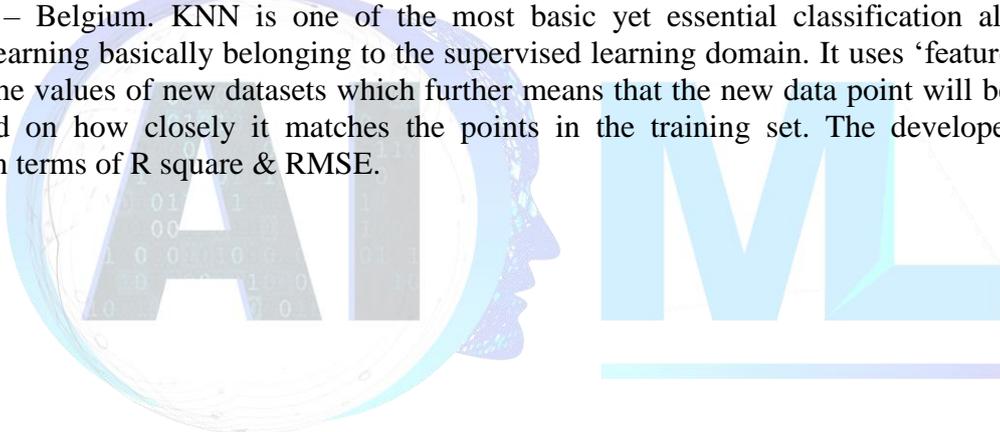
Non-Destructive Spectroscopic Apple Sorting with K- Nearest Neighbors Algorithm

Manisha V. Bhanuse, Assistant Professor, D. Y. Patil College of Engg. & Tech. Kolhapur, India

Dr. S. B. Patil, Incharge Principal, Dr. J.J. Magdum College of Engg. Jaysingpur, India

Abstract

Infrared Spectroscopy is non-destructive, non-invasive & chemical free technique which can be used to analyze wide range of biological materials. There are many varieties of apple fruits found in Indian market. To identify the variety of apples such as Fuji, Red Star and Gala. In order to distinguish the variety more precisely, machine Learning based K-Nearest Neighbor (KNN) algorithm is proposed in this paper. The classifier has been considered for the spectral database provided by CAPA Apple Quality Grading Multi-Spectral Image Database, ULG (Gembloux Agro-Bio Tech) – Belgium. KNN is one of the most basic yet essential classification algorithms in Machine Learning basically belonging to the supervised learning domain. It uses ‘feature similarity’ to predict the values of new datasets which further means that the new data point will be assigned a value based on how closely it matches the points in the training set. The developed model is evaluated in terms of R square & RMSE.



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Analysis of Major Depressive Disorder Using Ensemble Technique

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Abstract

Depression is a medical condition that exists on continuum of severity ranging from mild, momentary states of low mood to severe, long term symptoms that have a major impact on an individual's life. It is one of the primary causes of disability worldwide and contributes significantly to the global illness burden. The complexity for analyzing the major depressive disorder can be implemented using mental health dataset acquired from the World Health Organization. Ensemble machine learning aims to supervise on the strength and weakness of commonly used machine learning models, in order to minimize the risk in decision making. The experimental outcomes reveal that our ensemble technique used to analyze the depression brought out high acceptability in term of prediction and an accuracy of 95% was achieved.

Keywords

Depression, Mental health, Data analysis, Ensemble model, Categorization

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Anime Face Generation using Generative Adversial Networks

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Abstract

Anime characters are used not only in books, but also in entertainment, awareness shows, video games, etc. In the recent times, there are many systems built for anime face generations. There are also various kinds of Generative Adversial Networks that are used for this problem. The efficiency and performance of Generative Adversial Networks are found to be increasing as days go by. This project is done to compare the quality of images, performance and efficiency and performance of two types of Generative Adversial Networks; namely Deep Convolutional Generative Adversial Network, and Style Generative Adversial Network². Fréchet Inception Distance (FID) is taken as the evaluation metric for the systems implemented. For Deep Convolutional Generative Adversial Network, an FID score of 624.04 is found; whereas for Style Generative Adversial Network², an FID score of 30.6 is found. From the resultant images and the Fréchet Inception Distance score, it is evident that Style Generative Adversial Network² is the best model for anime face generation.

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Watermarking of Images with DWT and SVD through Genetic Algorithm

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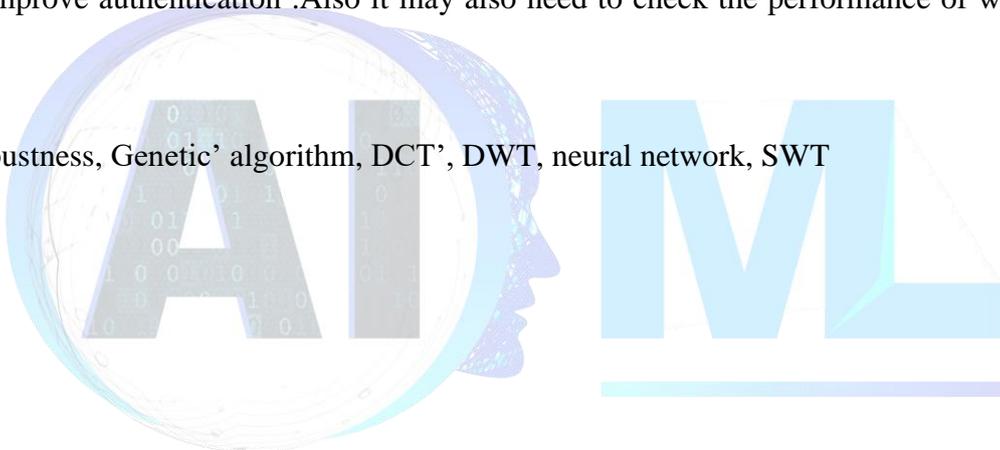
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Abstract

In this time everything is digitised, digital documents like text, photo, audio and graphics models can be easily copied and can be send from one place to another. Now a days many new methods and technologies have been used to protect the multimedia files, storage and sharing the contents. Our main aim behind the attacks can be to change or delete the contents to claim ownership. Techniques have improved the robustness of watermark and quality of watermark is the main aim in this paper. This also improve authentication .Also it may also need to check the performance of watermarking methods.

Keywords

Image, Robustness, Genetic' algorithm, DCT', DWT, neural network, SWT



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Statistical Investigation of Student Behavior Analysis Models from an Empirical Perspective

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Abstract

Student behavior analysis is a multidisciplinary field which requires exploration of a wide variety of data, including, student's geographical profile, area of behavioral study, temporal responses, situational responses, analytical reasoning, attention profile, etc. Combination of these factors requires design of intelligent machine learning approaches, which work on temporal behavioral responses. For instance, to predict student's inclination towards technical education, models utilize analytical questionnaire, and social media tools to capture student's behavior. This data is processed using various deep learning architectures to estimate student's inclination probability towards technical education. A wide variety of architectures are proposed for this task, and these architectures vary in terms of performance metrics, area of application, geography of student, etc. This makes it uncertain for researchers to test, validate & select most optimum models for their application, which increases cost & time needed for deployment. In order to reduce the uncertainty of model selection, this paper reviews some of the recently proposed methods for student behavior analysis, and compares them in terms of performance metrics, area of application, and geographical parameters. The performance metrics include accuracy of analysis, computational complexity, mean squared error (MSE), and speed of analysis. This review will be helpful for researchers & behavioral analysis system designers to select the most optimum models for newer deployments, and will assist in performance up gradation of existing systems. Moreover, this text also recommends various improvements & enhancements in the reviewed models, which assists in upgrading their internal capabilities including scalability, flexibility, and performance analysis.

Keywords

Behavioral, analysis, geography, accuracy, complexity, student, technical, education

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A Novel Simulation Framework towards Optimizing Secure Data Transmission in Internet- of-Things

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Abstract

Simulation-based modelling is one of the cost effective mechanism in order to assess the effectiveness and practicality of solution towards solving real-world problems. This paper reviews existing simulation-based approaches in IoT to find that it still lacks sufficient security measures as well as energy efficiency. Hence, this paper contributes by presenting a novel simulation-based model which is capable of identifying the key-based threats and successfully perform authentication using a novel hashing based security function unlike any complex and iterative cryptographic methods. The study outcome shows that proposed simulation model can successfully offer better energy efficiency and resiliency from key-based attacks in IoT.

Keywords

Wireless Sensor Network, Internet-of-Things, Security, key management, key-based attack, Cryptography

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Empirical Study and Analysis of Software Bug Localization Approaches Using Deep Learning

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Abstract

Bugs comes in high volume and documenting them properly in a specific format in the bug reports is difficult. Locating these bugs in correctly identified buggy files is a challenging task which needs to be automated. Numerous tools and techniques are proposed by researchers to support developers and testers to detect buggy files and automate the process of bug localization with greater accuracy. Recent research deal with the automation of Bug Localization process by using different techniques and tools. In this paper, we presented a comprehensive review of few papers in the domain of bug localization. This review helps us to know the benchmark datasets that are used in this process of bug localization, the major techniques that are worked upon, the findings and evaluation criteria and the architecture of various models and frameworks developed by researchers to automate the task of bug localization. This paper works on IR and DNN approaches and attempted to improve the previous results of DNNLOC successfully. The optimized version of the model improved the accuracy from 0.815 to 0.969 for enhanced rvsm and 0.83 to 0.971 for enhanced dnn. It is apparent that information retrieval approach and deep learning approach complement together in the domain of bug localization.

Keywords

Bug Localization, enhanced rVSM, IR DNN

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Classification of Pneumonia using a Combined Approach of Image Processing and Deep Learning Algorithms

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Abstract

The process of classifying and identifying pixel groupings or vectors in an image according to particular rules is referred to as image classification. With the expeditious development of science and technology and people's higher and better demand for quality of life, image automatic classification technology has been applied to numerous fields of development. When we classify the image, the normal image classification technique cannot accurately grasp the inner relationship between the identified objects, in addition to that because of the too high characteristic dimension of the data the traditional method also has the limitation of the recognition object feature expression. Also, it is necessary to choose which features are essential in each given image. Therefore the experimental results are not ideal. Considering the above content, this paper proposes an image classification technique gleaned from the convolutional neural network. The appropriate Convolutional Neural Network Model is chosen for the recognized dataset. COVID19 has comparable signs and symptoms to viral pneumonia and the sufferers of COVID-19 will also be subjected to secondary bacterial infections. The deep learning methods/models that are proposed, distinguish COVID-19 from different infections including SARS and bacterial pneumonia, in addition to viral pneumonia on the real-global dataset of lung X-Ray images. Images are pre-processed and trained for numerous classifications like Normal, COVID-19, Pneumonia, and different diseases. The models advanced as a part of this assignment achieved about 98 accuracies on a test dataset of three hundred images.

Keywords

Image classification, Convolutional Neural Network, Vgg 16, ResNet50

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Enhancing Energy Consumption through Novel Design of Hello Intervals in FANETS

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Abstract

Energy-efficient directing has turned into a basic issue for cutting edge eager for energy automated airborne vehicles (UAVs). Steering in a flying specially appointed organization is continuously difficult and turns out to be considerably more basic when few UAVs should cover a huge region. In any case, conventional DTN-put together steering conventions depend with respect to information dispersal to offer a superior parcel conveyance proportion, prompting clog and overabundance transmissions, causing weighty and pointless energy utilization. We propose novel model to stifle the welcome spans as per the flying velocities without changing the design of uav with the AODV to restricted the energy channels while correspondence in air. Considering obsolete AODV fixed ordinary time periods messages for correspondence, novel calculation exploits the versatility model to gauge hi stretches. Reproduction results show that original model could guarantee that 4.2% energy is saved while smothering the welcome messages at high paces .Moreover, throughput and start to finish postpone likewise been in also the benefit in number of reenactments.

Keywords

UAV, AODV protocol, DEWMA, mobility model, architecture, simulation

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Finger Vein Recognition Using Deep Learning

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Abstract

Recently, finger vein recognition technology has gained wide acceptance in both research as well as in commercial uses like access control and authentication. Finger vein recognition is a novel biometric technology which is challenging to spoof and has a wide array of potential applications. Many deep learning based finger vein recognition system has been proposed so far. The vein images are always prone to quality degradations due to the noise, blurring and illumination variations introduced while capturing the images using near infrared technique. However, most of the existing deep learning methods for finger vein recognition are based on ideal vein images (images with minimum image quality). Since the network is trained based on the vein images which are having a minimum image quality, the performance of recognition may get affected when the vein image quality is poor. We propose a transfer learning based model which is trained using vein images with varying image quality. From a unique vein image, four different quality images (original image quality, blurred image, noisy image1, and noisy image2) will be generated and used for training the model. To the best of our knowledge, this is the first work based on transfer learning model that relies upon varying qualities of vein images in order to improve the overall recognition performance. We have utilized SDUMLA vein image dataset for experiments. The experimental results shows that the proposed approach can perform better than the existing deep learning based methods.

Keywords

finger vein recognition, biometric technology, deep learning approaches, transfer learning

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Prevention of Phishing Attack on Voting System

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Abstract

Online Voting System Using Visual Cryptography is the way to provide a full secure voting center. It can allow voting from any remote location. Elections are kept completely secretive by using appropriate security measures to allow a voter to vote for any participant only if he or she enters the system by entering the correct password generated by combining the two shares using the VC system. The administrator sends 1 share to the voter's email id before the election and Assignment 2 will be available in the voting system to sign in during the election. The voter will receive a secret password to process his or her vote by combining share 1 and sharing 2 using VC. The crime of stealing sensitive information is an attempt by individuals or groups to obtain confidential personal information from unsuspecting victims. Fake websites that look very similar to the original are hosted to achieve this. This paper mainly focuses on security, privacy, and confidentiality issues..

Keywords

phishing; phishing detection; security; phishing analysis; anti-phishing techniques

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Power Efficient Motion Estimation Controller for Intelligent Mobile Systems using ML

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Abstract

Driven by the rapidly increasing demand for audio-visual applications, digital video compression technology has become a mature field, offering several available products based on both hardware and software implementations. Taking advantage of spatial, temporal, and statistical redundancies in video data, a video compression system aims to maximize the compression ratio while maintaining a high picture quality. Despite the tremendous progress in this area, video compression remains a challenging research problem due to its computational requirements and also because of the need for higher picture quality at lower data rates. Designing efficient coding algorithms continues to be a prolific area of research. For circumvent the computational requirement, researchers has resorted to parallel processing with a variety of approaches using dedicated parallel VLSI architectures as well as software on general-purpose available multiprocessor systems. Despite the availability of fast single processors, parallel processing helps to explore advanced algorithms and to build more sophisticated systems. This paper presents an overview of the recent research in video compression using parallel processing. The paper provides a discussion of the basic compression techniques, existing video coding standards, and various parallelization approaches. Since video compression is multi-step in nature using various algorithms, parallel processing can be exploited at an individual algorithm or at a complete system level. The paper covers a broad spectrum of such approaches, outlining the basic philosophy of each approach and providing examples.

Keywords

Hierarchical, motion estimation, multiresolution, VLSI

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Parking System using IOT

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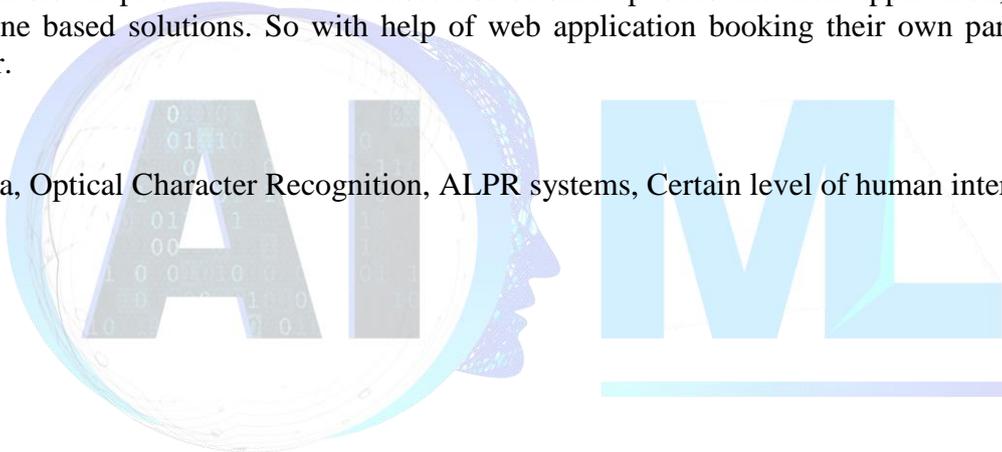
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Abstract

This system is used for people to find unoccupied parking slot. In case of excess cars parked, people have to find parking in other areas. With the help of the real-time parking guidance software, the possibility of traffic can be avoided. This System allows people to pay for their parking slot and register their slot in prior. With the increased use of smart phones and their application, user prefer mobile-phone based solutions. So with help of web application booking their own parking slot is made easier.

Keywords

Parking area, Optical Character Recognition, ALPR systems, Certain level of human interference



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Online Smart Voting System Support through Face Recognition

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Abstract

India, despite being a democracy and the world's largest, continues to hold elections using either secret ballot voting or Electronic Voting Machines (EVM), both of which are inefficient and involve huge costs and physical work. The existing approach necessitates the personal presence of each member, which many people find inconvenient. This paper focuses on Face Biometric Smart Voting (FBSV) system that employs facial recognition to unlock the voting system, similar to how your phone does, and does not require physical presence to vote, as does the standard system. The proposed web based FBSV system allows voters to cast their ballots from anywhere on the globe. The use of FBSV system reduces the chances of a vote being duplicated, and only individuals who have registered prior to the election and have been recognized by the system will be permitted to vote. As a result, the system must be tuned to be efficient, leaving no place for unwelcome voting methods.

Keywords

Face Detection, Face Recognition, Online voting System, Polling, Smart Voting

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RSSI based Classroom Automation and Attendance Monitoring Using Deep Learning

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Abstract

Here the proposed method employs a programmed system which could be supportive to operate with sensors and microcontrollers. Here a network with one central control section is employed and the networks are connected with IR sensors, relays and other electrical equipments. Such type of sensors is communicated with a microcontroller. An IR sensor finds the presence of an individual while crossing a particular zone and passes this data to the controller. Once the data is obtained by the controller from a particular sensor, it passes this to a particular relay after which the specified appliance will turn on/off and giving thanks to the presence or absence of an individual. The model along with the demo kit has verified and it is more feasible. In this system, the camera is used to recognize the face of an authorized person since the authorized person's face is already registered in this system. Therefore the person's presence has recognized automatically.

Keywords

Smart classroom, Smart education, education for sustainable development, teaching and learning methods, IR sensors, competencies, authorized learning environments

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Fish Recognition using Deep Neural Network and MATLAB

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Abstract

Live fish recognition is one of the most crucial elements of fisheries survey applications where the vast amount of data is rapidly acquired. Different from general scenarios, challenges to underwater image recognition are posted by poor image quality, uncontrolled objects and environment, and difficulty in acquiring representative samples. This paper mainly proposes a fish recognition framework that consists of a supervised feature learning technique. Depending on medical uses and fish market uses, the required data is sent for further work. This paper uses deep neural networks for the development of system modules. Neural networks will provide better accuracy under different conditions of input images and different targets. Experiments show that the proposed framework achieves high accuracy on both public and self-collected underwater fish images with high uncertainty and class imbalance.

Keywords

Deep Neural network, Auto Encoder, Soft max layer

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A Review on Smart Energy Meter Based on IoT

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Abstract

In recent years, electrical appliances are increased in a huge amount. Along with this, the consumption of electrical power has also increased. So that the demand for electrical power is also increased. As the decrease in electrical energy sources due to the high consumption of the individual appliances. it should be controlled in order to overcome the above problem. Here it can be measured, controlled, and tracked the power consumption of electrical power of individual appliances. An accurate power measurement can't be achieved by using a conventional type of energy meter. As the customer cannot control and monitor the power consumption by each appliance. In the growth of the smart grid in the power system, efficient energy consumption plays a major role. By using the implementation and design of an Internet of Things (IoT) the above problems can be minimized. It is a cost-effective, minimalistic, efficient, and iot based energy meter. The smart energy meter will measure the individual unit power consumption of the appliances. It also sends notifications when it reaches the maximum load. The energy meter is classified into 3 types. They are electro-mechanical meters, electronic meter, and smart energy meter.

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Taylor Water Cycle Optimization based Deep Residual Network Classifier for Skin Cancer Detection Model

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Abstract

In today's scenario, the skin cancer is one of the dangerous threat to the human life. It may be because, the modern lifestyle requirements are forcing the humans to make use of artificial products for livings. So, it is important to detect the skin cancer in the early stages and prevent the loss to human life. The primary aim of this research is to develop the method for skin cancer detection. There are several attempts made by the researchers by using different techniques in the different domains including machine learning. But, accuracy enhancements and computational cost are the issues, which are still not answered satisfactorily. Deep Residual network along with an optimization algorithm is core of the model classifier required for the skin cancer detection. Image based Deep Residual network classifier is used for detection of the skin cancer. The classifier will be trained using developed optimization algorithm, named Taylor Water Cycle Optimization (TWCO) algorithm. The developed TWCO approach will be newly devised by integrating the Water Cycle Optimization Algorithm (WCA) and Taylor series. The reason to use TWCO algorithm is the accuracy enhancement in detecting the skin cancer along with reducing the computational cost of the model.

Keywords

accuracy, Deep Residual network, machine learning, skin cancer, Taylor Water Cycle Optimization

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An Investigational Study on Ensemble Learning Approaches to Solve Object Detection Problems in Computer Vision

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Abstract

Object Detection is a challenging task in computer vision, which is used to identify all or required objects in the given images or videos. The object detection tasks are widely used in many real-world image classifications and face recognition applications like self-driving cars and autonomous robots etc. Considering the challenges in object detection, this paper proposes to present a study on ensemble learning-based approaches to solving object detection problems. The proposed study uses the *YOLO* algorithmic model (You Only Look Once) to formulate the ensemble learning model with multiple *YOLOV3* variants (*YOLOV3-320-weights*, *YOLOV3-SPP* and *YOLOV3-Tiny*). This ensemble learning model, formulated in this study (named *YOLOV3-ensembled*) is a combination of these algorithmic models. This study, initially, predicts the objects using the *YOLO* variants individually. Then the variants are combined to detect the objects. The experimental setup included the evaluation metrics *IoU* (Intersection over Union) and *mAP* (mean Average Precision). The comparative performance analysis of the ensemble model with other individual models is presented in this paper. It is observed from the results that the *YOLOV3-320-weight* model could predict the objects more accurately with good *IoU* scores and *mAP* scores.

Keywords

Object Detection, Ensemble Learning, Computer Vision, Image Classification, Face Recognition, and *YOLOV3* (You Only Look Once)

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Future Directions of Sign Language Recognition Using Finger Detection Techniques

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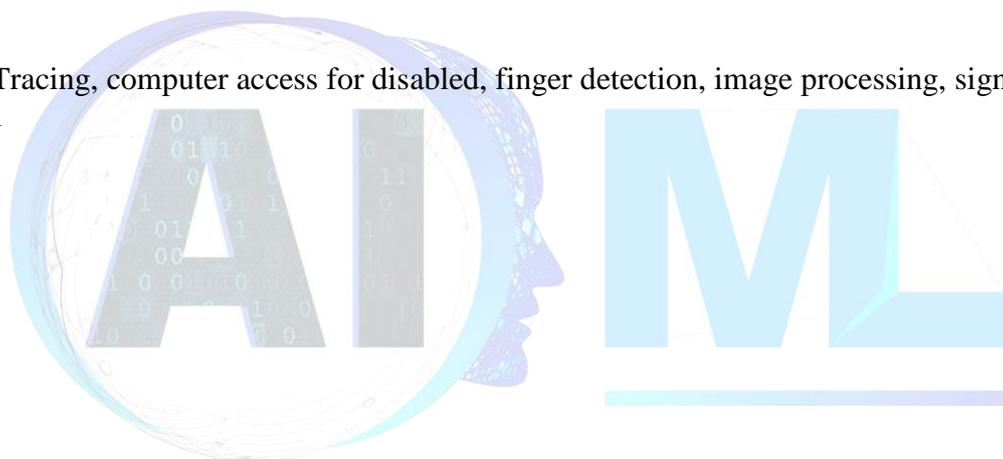
Dr. K. Aravinthan, Assistant Professor, Department of Computer Science, Adaikalamatha College, Vallam, Thanjavur, India

Abstract

The computer recognition of sign language is the main research problem in communicating with the hearing impaired. The system does not require the hand to be perfectly aligned with the camera, nor does it require the use of special markers or entry gloves on the hands.

Keywords

Boundary Tracing, computer access for disabled, finger detection, image processing, sign language recognition



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A Jensen-Shannon Fuzzy Divergence Measure with Pattern Recognition Application

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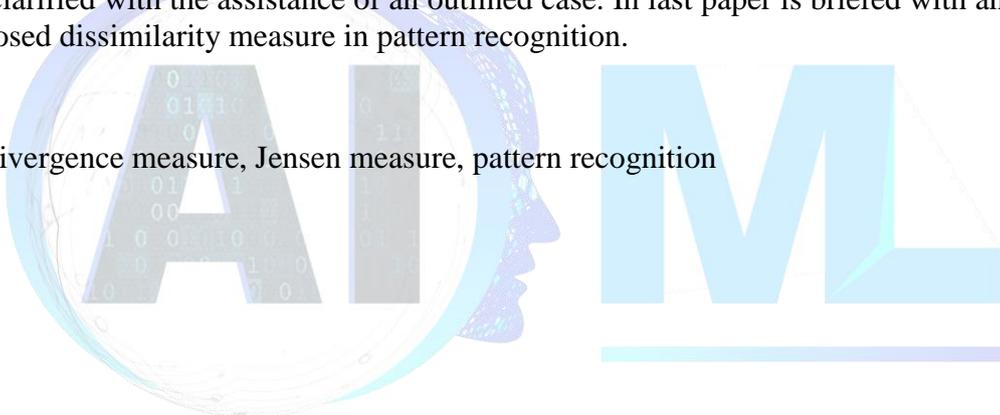
Satish Kumar, Maharishi Markandeshwar University, (Department of Mathematics), Mullana, (Haryana), India

Abstract

The requirement of appropriate divergence measures emerge as they play a vital part in segregation of two likelihood disseminations. The display communication is committed to the presentation of one such divergence measure utilizing Jensen inequality and Shannon entropy and its approval. On basis of the proposed divergence measure, a new dissimilarity measure is presented. Other than building up approval, a few of its major properties are moreover presented. Advance, based on proposed dissimilarity measure, a new multiple attribute decision making method is presented and is altogether clarified with the assistance of an outlined case. In last paper is briefed with an application of the proposed dissimilarity measure in pattern recognition.

Keywords

fuzzy set, divergence measure, Jensen measure, pattern recognition



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A Reliable Eye blink-based Home Automation System using False Free Detection Algorithm

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Abstract

In this paper, we have developed a smart home control system that uses brain wave technology to achieve brain-computer interaction. We have captured the brain signals using a mind link sensor placed over the head of a user. And the signal generated by the brain will be received by the mind link sensor and then transmitted to a processor through Bluetooth module. In the processor, it eliminates the noise and remove the artifacts from the data to represent true brain signals and the signal processed will be actuated based on the set algorithm.

In the considerable number of papers and previous works in which there are concepts of home automation with aid of eye blink detection where the system detected an eye blink when it was not present and missed blinks which in turn may lead to operations in the wrong direction. So, to overcome this limitation, we have designed an algorithm that eliminated false detection and the missed blinks.

The False detection is eliminated by considering the two peak values of the blinks detected and the peak values act as a bridge between the set of choices pointed in the GUI (Graphical User Interface) and thus helps the user to control the household appliances using eye blink detection.

Keywords

Brain Computer Interaction, Eye blink Detection, Graphical User Interface (GUI), mind link sensor

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A Secured Face Recognition Using Fisher's Linear Discriminant and Cryptography

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Abstract

Fisher linear discriminant (FLD) has recently emerged as a more efficient approach for extracting features for many pattern classification problems as compared to traditional principal component analysis. However, the constraint on the total number of features available from FLD has seriously limited its application to a large class of problems. In order to overcome this disadvantage, a recursive procedure of calculating the discriminant features is suggested in this paper. The new algorithm incorporates the same fundamental idea behind FLD of seeking the projection that best separates the data corresponding to different classes, while in contrast to FLD the number of features that may be derived is independent of the number of the classes to be recognized. Extensive experiments of comparing the new algorithm with the traditional approaches have been carried out on face recognition problem with the Yale database, in which the resulting improvement of the performances by the new feature extraction scheme is significant.

Keywords

Face recognition, feature extraction, Fisher Linear Discriminant (FLD), principal component analysis (PCA)

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An Automatic Nuclei Segmentation Approach based on U-Net Deep Neural Networks in Digital Pathology Images

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Abstract

There has been a great attention in performing nuclei segmentation in histopathology images. Automatic Nuclei Segmentation will help the medical practitioners in making the right decisions and also it would save time. In this paper, a hybrid encoder-decoder model is proposed based on the U-Net Architecture framework. The VGG-19 model is used in the encoder contraction path and a Convolutional Neural Network with padding and batch normalization is used in the expansive path. The proposed model has achieved an iou of 97.2%, and DSC of 93.4% and F1 score of 88.3%.

Keywords

U-Net, VGG-19, CNN, histopathology

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Abnormal Blob Detection in Diabetic Retinopathy using Image Processing Methods and Deep Neural Networks

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Abstract

Automated detection of blood vessel structures is becoming of crucial interest for better management of vascular disease. As blood vessels can be seen as linear structures distributed at different orientations and scales in an image, various kernels (or enhancement filters) have been proposed to enhance them in order to ease the segmentation problem. This work concentrates on providing a solution for vessel segmentation, classification and localization of abnormal regions in the retinal images. Deep learning methods are employed for vessel segmentation which is further extended to classify the type of the image. The localization of the abnormal regions is detected using edge detection and contour models.

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Disease Gene Identification: Review, Challenges & New Framework

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Abstract

Genomes in living organisms are responsible for every working mechanism of the body. If some changes or mutation occurs in genes, they cause abnormality or diseases. These diseases range from single-gene diseases to complex diseases. In this fast-growing era of environmental changes, many diseases have evolved and because of mutations, new variants are coming. It is important to identify the disease and provide fast treatment. Machine learning provides a better approach to identify the disease genes. But disease gene identification is a challenging task as huge data is available and genes need to be identified accurately. With the advancement in technology, many systems have been developed to identify diseases and enhance the diagnosis process. In this paper, some existing research has been discussed and a GO aspect-based disease gene identification framework has been proposed. The framework involves two major data sources GeneOntology and DisGeNET. The objective of this framework is to identify disease genes from GeneOntology with the help of a DisGeNET source and also classify the diseases caused by a particular gene.

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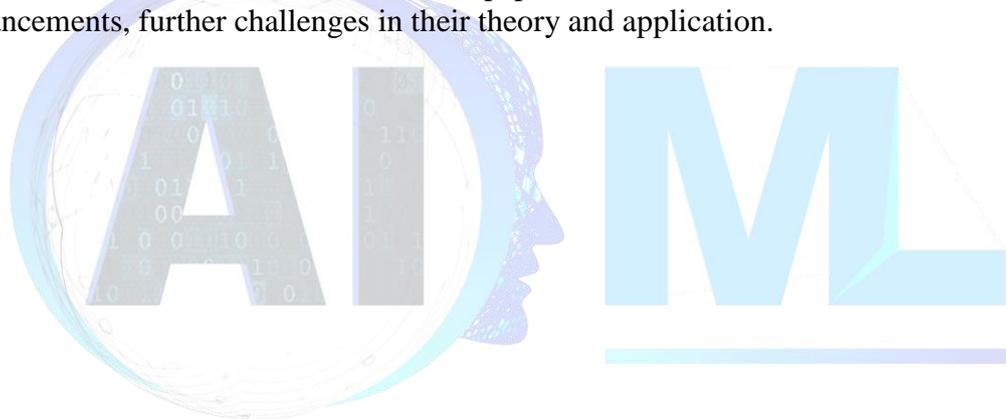
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Natural Language Generation Based Content Handling: An Overview

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Abstract

Natural Language Generation (NLG) uses Artificial Intelligence (AI) methods for generating a natural language text in order to meet specified communicative goals. NLG can be used in machine-to-human and human-to-machine interaction. Basically, NLG recognizes and collects a few data points and converts them into sentences. NLG is widely used in content determination, text structuring, sentence aggregation, lexicalization, Linguistic realization. The aim of this paper is to give an overview of various current available NLG models as well as discuss content handling using the Recurrent Neural Network (RNN) encoder-aggregator-decoder technique in detail. In addition to reviewing different available NLG models, the paper also mentioned merits, demerits of NLG and future enhancements, further challenges in their theory and application.



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Leaf Disease Classification Using Machine Learning Techniques

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Abstract

Machine learning techniques are widely used in many fields, in this paper machine learning classification algorithms are used in an aquaponic system for plant disease classification. Aquaponics is an efficient and smart method of growing crops in water. In an aquaponic system, freshwater fishes known to benefit leafy crops the most. But the plants get affected due to certain disease in the leaves. In this paper, four different supervised machine learning algorithms are used to detect and classify the tomato leaf diseases. The process involved in the classification of the tomato leaf disease are leaf Image acquisition, Image preprocessing, augmentation, feature extraction and classification. The input leaf images are the healthy and diseased tomato leaf, where the disease in the leaf are of ten different types. The classifier algorithms used for classifying the leaf disease are Support Vector Machine (SVM), K-nearest neighbour (KNN), random forest and decision trees. Feature extraction is done with vgg16 convolution neural network architecture. By applying the four classification algorithm over the features extracted images, Support Vector Machine (SVM) performed well among the four classification algorithms by classifying the tomato leaf diseases with an accuracy of 99%.

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Constraint Induced Pain Response Indicator with Display Unit

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Abstract

As far as physiotherapy OPD's are concerned, patients with acute as well as chronic cases come for treatment. Many conventional treatment approaches like electro-therapy, exercise therapy, action therapy and advanced therapeutic alternatives like Instrument Assisted Soft Tissue Manipulation (IASTM), Cupping Therapy, Dry needling etc are given as a part of physiotherapeutic rehabilitation protocol. The primary complaint with which the patient comes to physiotherapy setup either on a In-patient or Out-patient basis is "**pain**". Even if the patients are treated to reduce pain; there are some physiotherapeutic interventions such as mobilization, manipulations etc which might trigger or aggravate pain. Even some of the modalities like Continuous Passive Mobilizer (CPM) which help in passively flexing or extending stiff upper limb or lower limb secondary to fracture or surgery, trigger or aggravate existing pain as the stiffened structures (due to prolonged immobilisation) are stretched. Although pain is the obvious natural response to stretching of stiffened or tightened structures, it is very crucial. The proposed "**CONSTRAINT INDUCED PAIN RESPONSE INDICATOR WITH DISPLAY UNIT**" is an innovative device designed with the ultimate aim of providing a device which would give auditory as well as visual feedback of the pain-intensity during the on-going physiotherapy treatment.

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An Explainable AI Powered Cloud Solution for Churn Prediction in the Telecom Industry

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Abstract

Customer churn is a critical problem in the telecom industry. As per the global statistics, the telecom churn rate is 21% per annum and the loss in revenue is approximately \$ 5.7 billion. Businesses need to understand the reasoning behind churn numbers and the factors for churn and develop strategic action plans.

The solution we have developed predicts churn for telecom customer data and generates Human Interpretable Explanations for individual customer churn. The solution also generates data visualization and customer segmentation with customer profiling. The solution is hosted on AWS environment using Lambda microservices.

On the telecom churn data, we have built an XG Boost model for churn predictions. On the base XG Boost model, an explanation model has been built using our innovated explanation AI algorithm to come up with human interpretable explanations for individual customer churn. The differentiator in our solution is the explainable AI algorithm we have used. The explanation algorithm gives the rationale and the reasons behind individual customer churn by generating thresholds for the parameters. The results from our innovated explainable AI algorithm has been compared with open source algorithms like SHAP and LIME. The XG boost model has shown an accuracy of 0.82 on the train data and 0.79 on the test data.

The application developed is user friendly, highly reliable and accurate as it is powered by explainable AI, helps in high business growth as explainability helps in identifying reasons behind churn and helps in customer retention, highly scalable as it uses lambda microservices architecture with load & scalability handled by AWS and can be easily migrated to mobile devices.

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An Approach to Tourism Industry with Artificially Intelligent System

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Abstract

The conversational agents or chatbots have become a part of our everyday life and are designed to make our life easier. Recent advancements in natural language processing and artificial intelligence have made them surge past the popularity of social media apps as they can understand and process more information and respond more intelligently. Chatbots have covered most of the consumer and business markets and help these sectors gain huge profits due to customer engagements. In this paper we intend to provide such engaging and interactive services in the tourism industry as well. This is intended to boost the number of tourists every year thus giving a boost to the tourism sector which will further help and improve economic growth too. The voice enabled chatbot has been implemented as a Node.js application backed by a retrieval-based model. The dataset containing information on Indian monuments in a QA format was fed to the system to build intents and answer user queries. The proposed approach attempts to deliver an end-to-end system for tourists, foreign as well as domestic, visiting various monuments. The research process also led to the creation of an unavailable dataset covering almost all monuments of India.

Keywords

chatbot, NLP, Neural Network, Dataset, api.ai

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Cyber Attacks Detections by Intrusion Detection System Implemented in WEKA

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Abstract

With the enormous growth of computer networks and the huge increase in the number of applications that rely on it, network security is gaining increasing importance. Moreover, almost all computer systems suffer from security vulnerabilities which are both technically difficult and economically costly to be solved by the manufacturers. Therefore, the role of Intrusion Detection Systems (IDSs), as special-purpose devices to detect anomalies and attacks in a network, is becoming more important.

Traditionally, intrusion detection techniques are classified into two categories: misuse (signature-based) detection and anomaly detection. However, some researchers have recently proposed the idea of hybrid detection to reap the advantage of misuse detection by having a high detection rate on known intrusions as well as the ability of anomaly detectors in detecting brand-new attacks. Despite the inherent potential of hybrid detection, there are still two important issues that highly affect the performance of these hybrid systems. First, anomaly-based methods cannot achieve an outstanding performance without a comprehensive labeled and up-to-date training set with all different attack types, which is very costly and time-consuming to create if not impossible. Second, efficient and effective fusion of several detection technologies becomes a big challenge for building an operational hybrid intrusion detection system.

With respect to the aforementioned shortcomings, in this thesis, we introduce a network-based intrusion detection system to recognize malicious network activities and report them to the system administrator.

Keywords

j48, fuzzy logic, neural network, attacks, Naïve Bayes Classifier, decision tree Classifier, Random Forest Classifier, Multilayer Perceptron Classifier, intrusion detection system

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Women Safety Device

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Abstract

In our Country, even though it has superpower and an economic development, but still there are many crimes against women. The atrocities against the women can be brought to an end with the help of our product “FEMME”. This device is a security system, specially designed for women in distress. Method/Analysis: Using ARM controller for the hardware device is the most efficient and it consumes less power. We use radio frequency signal detector to detect hidden cameras. Findings: We analyzed that there is no security device for our total safety. The user must carry multiple devices. We found an ALL-IN-ONE security device which has all the features in one click. Applications/Improvements: In this paper we used ARM controller and android application in which both the device and the smart phone are synchronized using Bluetooth, hence both can be triggered independently. We can record audio for further investigation and can give an alert call and message to the pre-set contacts with the instant location every 2 minutes and can be tracked live using our application. Hidden camera detector is also a distinct feature using which we can ensure our privacy.

Keywords

ARM Controller, camera detector, Bluetooth, Security, android application

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Design of Bridge Structural Fault Detection System Using IoT

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Abstract

We are evaluating the effectiveness of IoT-based bridge health monitoring systems in order to detect the water level, the overall weight of vehicles on the bridge, vibration, and deformation in this project. According to the research, over 5,000 people have been injured and 1,217 people have perished in bridge collapses around the country in the last 15 years. In Mumbai, six bridges have collapsed in the last seven years, resulting in 28 deaths (2.3 percent), all of which were caused by man-made disasters, and at least one such catastrophe has occurred since 2010. In Karnataka, however, roughly ten bridges have collapsed in the last six years, resulting in a 5% reduction in traffic (around 65 deaths). It was discovered through an examination of several journal papers. According to a survey of several journal papers, no earlier studies relevant to the project of the IoT-based bridge health monitoring system that employs the private channel for periodic bridge monitoring have been published. The main advantage of implementing IoT (Internet of Things) is that it produces higher-quality output, and new technologies would make the system smarter and more receptive. We can limit the risk of human mistakes and the damage to the bridge caused by human and natural calamities by utilizing the IoT network. Bridge surveillance is a difficult operation; however, as stated above, using IoT and cloud will simplify the system. The tracking sensors are useful for a variety of purposes.

Keywords

IoT, Cloud & Wi-Fi

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IOT based Flood Monitoring System

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Abstract

Floods are one of the top natural disaster that affects many regions around the world, harming human lives and lessening economy growth. Also there are some places that are more prone to flooding than other places, the implementation of flood alert systems near dam provides critical information that can protect property and save lives. Nowadays, there is no idea about when flood will occur so there is need to aware people who are near the flooded area. Therefore, it is crucial to build an early warning system that forecast the water level to reduce the casualties of flood disaster.

The objective of this paper is to propose a system that able to detect the water level and provided sound of different water level on a mobile app and also able to produce alert emergency sound on voice record module ISD1820. Artificial Dam model is adopted as the methodology in this project. Arduino nano is used to collect water level information from the Ultrasonic sensor and transmit the information of water level to bluetooth module which send information to mobile application. After receiving the information on app, it will produced sounds of water level like water is low, water is raising, flood alert and ultrasonic sensor also transmit data on voice module record ISD1820 which produce alert emergency sound. This voice record module is attached near the dam so, that sound produced by the ISD1820 module will directly listen by people who are living near dam area.

Keywords

IOT, GSM, Bluetooth, Arduino nano , Ultrasonic sensor , Artifical Dam model , ISD1820 module

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Microcontroller Implementation for the Speed Control of DC Motor using Fuzzy Logic

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Abstract

This paper portrays an elective technique to execute a fluffy rationale speed regulator for a DC engine utilizing a fluffy rationale microcontroller. The plan, execution and test results on load and no-heap conditions are introduced. The regulator can be executed by utilizing just a modest quantity of parts and handily improved to be a versatile fluffy regulator. The regulator additionally gives elite execution conservative size and minimal expense.



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The Insights and Choices of Indian Students in Regard to Online Education during the COVID-19 Pandemic

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Abstract

Globally, the COVID-19 pandemic has caused educational institutes to close, affecting academic calendars. Most educational institutes have shifted to online learning platforms to maintain academic activities. There remains a question about the effectiveness of e-learning in a developing country like India, where the technical constraints such as bandwidth limitations and the suitability of devices are still not clear. We conducted an online survey of 798 Engineering students of various Universities to understand their perceptions and preferences towards online learning in this study. Moreover, we examined the students' preferences for various online learning attributes, which will help design an effective online learning environment.

As a result of the surveys, more than 62 percent of respondents were willing to use online classes to manage the curriculum during this pandemic. Moreover, most students preferred to use a mobile device for online learning. According to the students, the flexibility and convenience of online courses make them an attractive option, however, broadband connectivity issues in rural areas hinder students from taking advantage of online learning initiatives.

It may not be possible to switch completely from offline to online mode in Engineering programme, since many are practice-based, and it may be necessary to design a hybrid mode, the insights in this article can be useful in designing the curriculum for the new normal.

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NGO related Crime Prediction System using Machine Learning based Algorithms

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Harshada Sonkamble, Vishwatmak Om Gurudev College of Engineering, Mohili, India

Abstract

The increasing rate in criminal activities is a growing concern for any particular country/region. The intension of proposed system is to develop a web application which is user-friendly to the stakeholders such as Invigilators, NGOs and end-users.

The system establishes a simple relation between the above mentioned stake-holders where any individual user can report a crime without himself going to the police station. The invigilators then can track the complaint and give an option to the NGO for Rehab. Also this system analyse crime data of India scrapped through various websites.

The main focus is to predict the crime which is most likely to occur in the near future using various Machine Learning models. The parameters which will be required for the proposed model are timestamp which includes hours, days, months, years, geographical location i.e. latitude & longitude and the type of crime occurred.

The proposed system implements various historical Machine Learning algorithms like KNN (K-nearest neighbours), Decision tress and Random forest.

The goal is to analyse the surges and the hotspots of the crime so that it is efficient for officials to enhance security in such locations. To get a clear understanding in the patterns of the criminal behaviour which will help to carry the investigation sooner. The existing system predicts the different categories of crime in different location using similar historical Machine Learning models like Naïve Bayes, Decision Tree, etc. The proposed system attempt to make the classification work more sensible by merging similar type of classes into larger classes. Finally, the proposed system also provides an opening for future work like prediction of crime rate in near future.

Keywords

Machine learning, Crime prediction, Random forest, Decision tree, Linear regression , SQL, Python

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Smart Home Automation using IOT

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Abstract

In order to help maintain comfortable living conditions within a home, home monitoring and automation are utilized. The standards of human's comfort in homes can be categorized into several types. Among these categories, the most significant ones are the thermal comfort, which is related to temperature and humidity, followed by the visual comfort, related to colors and light, and hygienic comfort, associated with air quality. A system can be set to monitor these parameters to help maintain them within an acceptable range. Additionally, making the house smart is to allow for intelligent automatic executing of several commands after analyzing the collected data. Automation can be accomplished by using the Internet of Things (IoT). This gives the inhabitant accesses to certain data in the house and the ability to control some parameters remotely.

This paper presents the complete design of an IoT based sensing and monitoring system for smart home automation. The proposed design uses the EmonCMS platform for collecting and visualizing monitored data and remote controlling of home appliances and devices. The selected platform is very flexible and user-friendly. The sensing of different variables inside the house is conducted using the NodeMCU-ESP8266 microcontroller board, which allows realtime data sensing, processing and uploading/downloading to/from the EmonCMS cloud server.

Keywords

Automation, IOT, Relay, NodeMCu, esp8266-microcontroller, cloud-server

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QR based Online Shopping using Mobile Application

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Abstract

In today's Life, traditional shopping is a very time consuming job. In traditional shopping, the customer has to wait in long queues at the cash counter. This consumes lot of time and energy of both the shopper as well as cashier. To overcome this process, we are developing the smart shopping system using android application. In this system, User has to download and install the application on is android phone. After that, he scans the products QR Code and adds the quantity for the product. Then the product is added into the cart in this way user purchase the products and add it into the carts. User can add or remove the products from the cart the recommended products and the nearest path for that Product will displayed to the user. After purchasing the products, the bill is generated. This bill can be sent to the customer's mobile through online banking service thus the user can make quick payment and leave the shop early.

Keywords

QR code, React Native, Mongo DB, Shopping, Android, Smartphone, Node JS

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Blood Bank Donation System on Android

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Abstract

The main aim of this project is to save lives of people by providing blood. Our project Online Blood Management System using Android is developed so that users can view the information of nearby hospitals, blood banks.

This project is developed by three perspectives i.e. hospital, blood bank and patient/donor. We have provided security for authenticated user as new user have to register according to their type of perspective and existing user have to login. This project requires internet connection.

This application we are developing helps to select the nearby hospital online instantly by tracing its location using GPS. We are also providing an alert system for severe accidents as using that function an ambulance will be sent to your destination without any wastage of time.

This application reduces the time to a greater extent that is searching for the required blood through blood banks and hospitals. Thus this application provides the required information in less time and also helps in quicker decision making.

Keywords

Blood Bank Management System (BBMS); Blood bank; donor; acceptors; Administrator

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Engineering Teachers' Perceptions on Online Teaching Methods during Covid-19: With Reference to Undergraduate Indian Teachers

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Dr. Kamalkishor G. Maniyar, Vishwatmak Om Gurudev College of Engineering, Mohili, India

Abstract

Dealing with COVID-19 is one of the most difficult challenges the world has ever faced. During this pandemic season, there have been a number of issues in the Engineering Colleges. India has been placed on lockdown as a result of COVID-19. This study aims to learn more about respondents' perceptions about online education, which is the most recent method of instruction adopted by Engineering Institute since the epidemic. The study was conducted utilising data obtained through a Google form for Engineering Teachers in the special needs department of the faculty of Engineering from various colleges and Universities of India. This study is used factor analysis and descriptive statistics to record and analyse data.

This study is suggested that, the most difficult aspect of online classes is dealing with technology and network issues. To achieve this goal, teachers must participate training and improvement programmes on a regular basis. It is necessary to analyse the obstacles that stand in the way of embracing online learning and to take remedial action to overcome them.

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Prediction of Psychological Issues using ml

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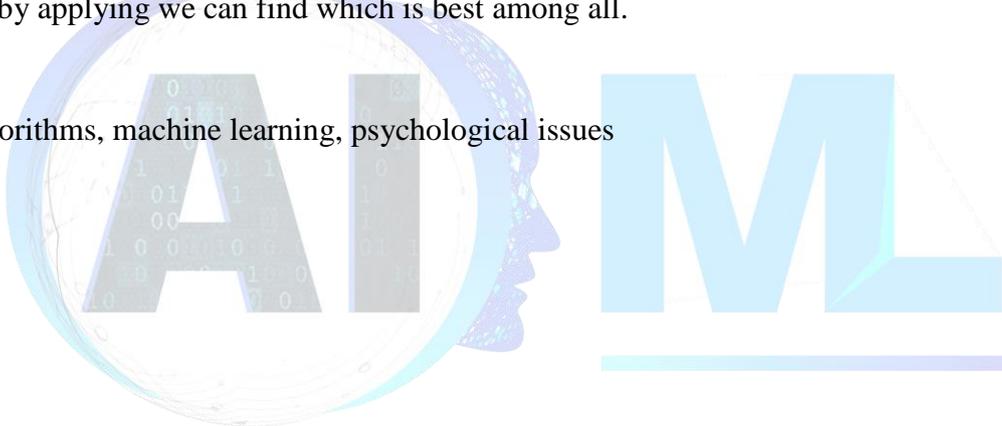
Abstract

In this modern world psychological issues like depression, anxiety and stress have become very common within the society. In this paper the prediction of depression, stress and anxiety can be made using algorithms in machine learning. For the application of those algorithms a survey can be conducted between employed unemployed group of people using “depression anxiety and stress scale questionnaire (DSS 21)”. This can be divided into different levels of severity by different machine learning algorithms as their accuracy is high.

They are suited particularly for predicting the problem on Psychology after practically applying different methods we can find that classes were imbalanced in confusion matrix. Through this five algorithms by applying we can find which is best among all.

Keywords

DSS 21 algorithms, machine learning, psychological issues



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Study of Machine Learning and Deep Learning Algorithm Proposed for Face Mask Detection

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Abstract

It has been two years passed since Pandemic COVID-19 began. We saw the brutal and devastating scenes during the second wave of the pandemic across the world. Due to a sudden surge in medical emergencies, utter chaos was observed. To prevent the spread of viruses and loss of life, WHO has instructed and advised many safety guidelines including wearing of a face mask. However, many irresponsible people resist or refuse to wear face masks.

To identify such people, researchers have proposed many face mask detection mechanisms. This paper presents the study of different algorithms based on Machine learning and Deep learning devised to detect face masks.

Keywords

Face Mask detection, Convolutional Neural Network, Machine learning, Deep learning, COVID-19, Object detection

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Object Detection using Deep Learning

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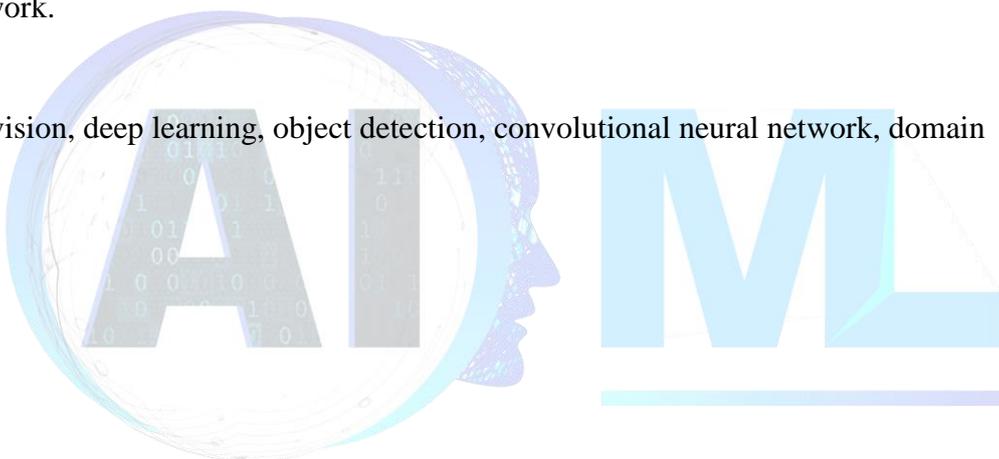
Abstract

The wide applications like understanding, robotics, video surveillance and self-driving systems have triggered big research in computer domain in recent years. The visual recognition systems are core of all this application. It can perform image classification, image detection and image localisation. They have achieved good research momentum, there is development in neural networks especially deep learning and visual recognition systems have acquired remarkable performances.

In this domain, object detection has witnessed a great success in computer vision. This paper decodes role of deep learning and techniques on convolutional neural network deep learning services and framework.

Keywords

Computer vision, deep learning, object detection, convolutional neural network, domain



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Future Need of Smart Building Management in India via IoT, BIM, and Augmented Reality

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Nivendra Mahajan, Vishwatmak Om Gurudev College of Engineering, Mohili, India

Abstract

This paper describes software architecture for Smart Building asset management that allows engineers to use IoT, BIM, and augmented reality to receive and update work orders and asset information. Construction industry trends are advancements that make buildings safer, more sustainable, productive, and healthy. Collaboration between competing service providers is required for smart buildings, which must enable interoperable, networked devices and systems within a structure. This entails employing a building management system to create automatic centralized control of a building's heating, ventilation, and air conditioning, lighting, and other systems. A smart building will necessitate continuous communication among all of the building's equipment and systems, resulting in increased efficiency, safety, comfort, and lower operating costs. Because it is driven by a process that collects and handles data, building information modeling aids in collaboration. Building information modeling facilitates collaboration by collecting and managing data, and construction can begin only after the virtual building meets all expectations and standards. BIM enables the building to effectively adjust and adapt to changing needs once it is operational. Augmented reality (AR) is a real-time, replicated image of a real world environment that incorporates computer-generated sensory data. AR technology, when combined with BIM, has the potential to transform the way we build, collaborate, and operate. Based on this architecture, the design of a smart building application is demonstrated, and experimentation results show that any given framework is viable and efficient.

Keywords

BIM, AR, Building Management Systems, Optimization, Space Utilization

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Application of Building Information Modeling (BIM) in the Structural Health Monitoring: A Systematic Review

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Nivendra Mahajan, Vishwatmak Om Gurudev College of Engineering, Mohili, India

Abstract

Building information modeling is used to characterize monitoring-related data in the study reported in this paper (BIM). The entire construction lifetime is being transformed by digitalization, just like every other element of our lives. This change creates a slew of new opportunities. Researchers have turned to sophisticated tools like BIM systems as a result of the need to increase sensing technologies through the use of wireless sensors, as well as a lack of descriptive tools for interpreting, displaying, and recording sensor outputs. BIM has grown in importance as a result of the extensive use of conducting tools in the Architecture, Engineering, and Construction (AEC) industry to present and manage information regarding structural systems and situations. While BIM certainly allows us to plan and build buildings with greater insight, it also provides major operational benefits. All of this will boost building profitability over time and deliver real benefits to investors, planners, contractors, tenants, and operators. The purpose of this systematic review is to look into the feasibility of implementing BIM on an existing structure for asset management and structural health monitoring. A method for integrating sensors to improve the visualization of structural health monitoring via BIM is being developed. Finally, by a complete evaluation of existing research, this work hopes to assist in the resolution of the aforementioned constraint.

Keywords

Structural health monitoring, Building sensors, BIM, Health Assessment

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Glaucoma Detection Using Fundus Images of the Eye

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Prof. Priyanka Patil, Vishwatmak Om Gurudev College of Engineering, Mohili, India

Prof. Anup Maurya, Vishwatmak Om Gurudev College of Engineering, Mohili, India

Abstract

Glaucoma is one of the leading causes of irreversible blindness in people over 40 years old. In Colombia there is a high prevalence of the disease, being worse the fact that there is not enough ophthalmologists for the country's population. Fundus imaging is the most used screening technique for glaucoma detection for its trade-off between portability, size and costs. In this paper we present a computational tool for automatic glaucoma detection using Fuzzy Logic Set. Improvements for disc segmentation in comparison with other works on the literature, a novel method to segment the cup by thresholding and a new measure between the size of the cup and the size of the disc. Results was obtained from a set of fundus images in collaboration with the Center of Prevention and Attention of Glaucoma in Bucaramanga analyses using MATLAB.

Keywords

Fuzzy Logic Set, MATLAB

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Systematic Review on Key Technology and Applications for Internet of Things

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Tejeswini Nehe, Vishwatmak Om Gurudev College of Engineering, Mohili, India

Abstract

The Internet of Things (IOT) has been paid more and more attention by the academe, industry, and government all over the world. The concept of IOT and the architecture of IOT are discussed. The key technologies of IOT, including Radio Frequency Identification technology, Electronic Product Code technology, and ZigBee technology are analyzed. The framework of digital agriculture application based on IOT is proposed.

Keywords

Internet of Things, RFID, EPC ,ZigBee , digital agriculture



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IoT based Photovoltaic Monitoring System Application

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H.D. Sonavane, Vishwatmak Om Gurudev College of Engineering, Mohili, India

Abstract

Solar photovoltaic (PV) system has become the greatest attraction in the clean, renewable electricity generation. However, the performance is varying due to various parameters and environmental conditions. Hence, a remote and real-time monitoring system is needed to assess its performance. Implementation of the Internet of Things (IoT) in the monitoring of the solar PV system was proposed and its performance was studied. The system consists of data acquisition, data gateway, and smartphone application display. The data acquisition was successfully collect the data with 98.49% accuracy and was uploaded to the data gateway. The data gateway was able to send the graphical representation of the data to the smartphone application with a mean transmission time of 52.34 seconds. The results demonstrate that the proposed monitoring system can be a promising solution for intelligent remote and real-time monitoring of a solar PV system.

Keywords

Photovoltaics, solar PV system, intelligent remote, Monitoring system, Smart Phone

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Managing Large Resources on Cloud

Priyanka Patil, Vishwatmak Om Gurudev College of Engineering, Mohili, India

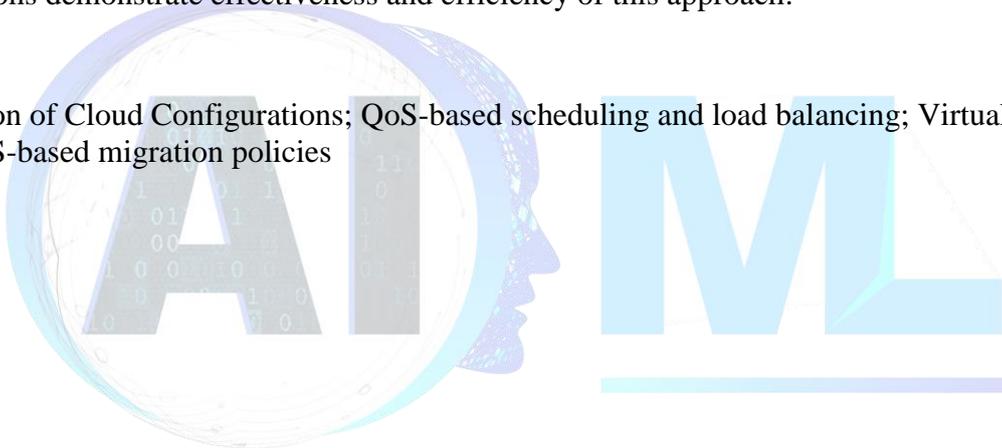
Anamika Rakshee, Vishwatmak Om Gurudev College of Engineering, Mohili, India

Abstract

Now-a-days worldwide internet and cloud acts as a most important medium in storage and computing area therefore to manage large requirements of cloud computing proper resource management is required with the help of which continuous service of cloud platform will be available to users which also provide performance guarantee. The aim of this paper is to provide resource allocation policies for virtual cloud environments which minimizes energy cost and also provide performance guarantee for large cloud centers. Therefore, we present a distributed hierarchical frame for optimization of resource management. Experiments across a variety of configurations demonstrate effectiveness and efficiency of this approach.

Keywords

Optimization of Cloud Configurations; QoS-based scheduling and load balancing; Virtualized system QoS-based migration policies



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IoT-Enabled Automatic Smart Irrigation System

Prof. Divya Padave, Vishwatmak Om Gurudev College of Engineering, Mohili, India

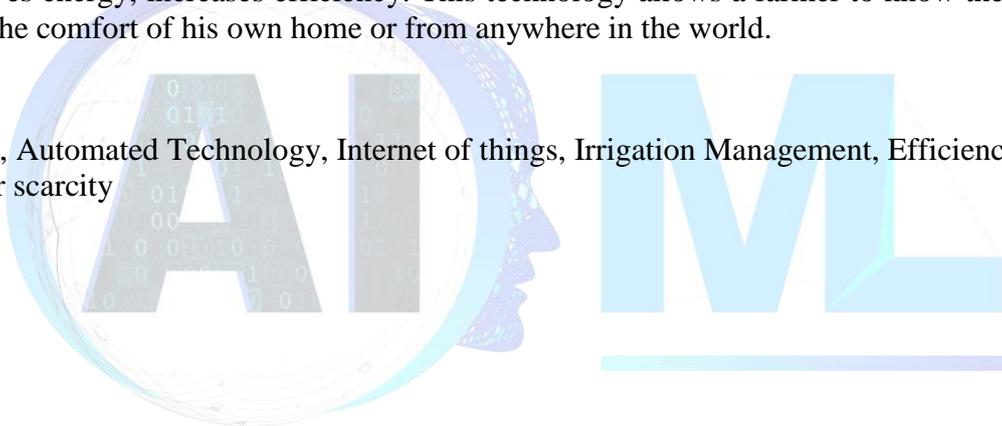
Abstract

Water scarcity is the one of the world's most pressing issues today and agriculture is a demanding occupation that consumes a lot of water. As well as due to the traditional method of application of water, wastage of water has also increased. As a result , a system that uses water wisely is required. India is an agricultural country, with agriculture employing over 70% of the population. Farmers have a vast variety of crops from which to choose. However, growing these crops for maximum production and quality is a very sophisticated process. It can be improved with the help of automated technology. The use of an Internet of things or IoT can help with irrigation management.

It proposes an irrigation system for agricultural regions that is fully automated. The Internet of things or automation system is currently playing a significant role in human life. It not only gives comfort, but also saves energy, increases efficiency. This technology allows a farmer to know the state of his field from the comfort of his own home or from anywhere in the world.

Keywords

Agriculture, Automated Technology, Internet of things, Irrigation Management, Efficiency, State of field, Water scarcity



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Maximizing Wireless Sensor Network's Lifetime using Sensor based Load Balanced & MIHOP Method

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Vaishnavi Rajkor, Vishwatmak Om Gurudev College of Engineering, Mohili, India

Prathmesh Ambekar, Vishwatmak Om Gurudev College of Engineering, Mohili, India

Amit Bhoir, Vishwatmak Om Gurudev College of Engineering, Mohili, India

Abstract

A wireless sensor network (WSN) is an effective solution for a wide range of applications. Most of the existing WSN architectures use static nodes which are densely deployed over a sensing area. These sensor nodes operate on batteries & it is difficult to replace & recharge the batteries of these nodes periodically. Hence to increase the lifetime of these sensor nodes & consequently that of the network, energy consumption must be minimized. In this paper, we discuss a network infrastructure that consists of a three-layer framework for mobile data collection, that includes the sensor layer, cluster head layer, and mobile collector layer (called SenCar layer). It employs distributed load balanced clustering and dual data uploading (LBC-DDU). The cluster head information is sent to the SenCar for its moving trajectory planning by adopting an efficient MIHOP technique which is a combination of MIMO and Multihop routing method. LBC-DDU & MIHOP achieves higher energy saving per node and energy saving on cluster heads compared with data collection through multi-hop relay to the static data sinks.

Keywords

Wireless sensor networks (WSNs), load balanced clustering, dual data uploading, MIHOP, Sencar, mobility control

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A Comparative Statistical Analysis between ML Algorithms & DNN Techniques Using MNIST Dataset

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Chelsea Verma, Dept. of Computer Science & Engineering, ABES Engineering College, Ghaziabad, India

Divya Sharma, Dept. of Computer Science & Engineering, ABES Engineering College, Ghaziabad, India

Puneet Kumar Goyal, Dept. of Computer Science & Engineering, ABES Engineering College, Ghaziabad, India

Abstract

Handwritten digit recognition has been around since a very long time and it has always been a topic of attention among the students and researchers. This job of recognizing handwritten content has great importance as it helps in recognizing various type of important information which are filled by hand but are not clearly understood. While solving this problem, the most common challenge is that the digits written by hands are of different size, orientation or thickness. In spite of all these challenges, various Machine Learning Algorithms & Deep Neural Network Techniques are trying harder to achieve higher accuracy. In this report, we have tried to compare the accuracies of most common and popular ML Algorithms which includes SVM (Support Vector Machine), Random Forest Classifier (RFC) & KNN (K-Nearest Neighbour) with DNN Techniques (Deep Neural Network Technique) also termed as CNN (Convolutional Neural Network) using Keras. We have applied these algorithms and techniques on MNIST dataset. With the help of the results obtained, we have plotted some graphs to show differences between ML (Machine Learning Algorithms) & DNN (Deep Neural Network Techniques). In this research work, we got the accuracy of approx 97.86% using SVM, 97.10% using KNN, 97.05% using RFC while on the other hand, by using CNN, we got 99.98% accuracy on validation image data. Also, we were able to achieve accuracy approx , 96.85% using RFC, 97.73% using SVM, 96.80% using KNN while on the other hand, by using CNN, we got 98.72% accuracy on test image data.

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Survey – A Comparative Analysis of Face Recognition Techniques Using Soft Biometrics

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Dr. Radhika K R, Information Science and Engineering, BMS College of Engineering, Bengaluru, India

Abstract

Soft biometrics attracting a lot of interest with the spread of surveillance systems, and the need to identify humans at a distance and under adverse visual conditions. In this paper, the survey has been carried out among the most prominent published literature in face recognition systems using soft biometrics. A comparative analysis is done between various approaches which use different techniques in order to recognize the faces. An attempt to estimate the best approach that could be used that satisfies different parameters in order to develop the computational model for face recognition that will be fast, simple, and accurate in different environments. Such a system's requirement cannot be underestimated as it may be the only way to recognize thieves and culprits of different crimes, a truly automatic face recognition system should be sought after which is feasible, has current feature extraction methods improved and extended with regards to robustness in natural environments as well as the independence of manual intervention during initialization and development.

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Comparative Analysis of Ensemble Learning and Conventional Machine Learning Algorithms in Prediction of Cardiovascular Disease in Diabetic Patients

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Narendra Sahu, CIET Raipur (C. G.), India

Abstract

In today's era of modern technology, everything in our daily life has transformed a lot. Due to modern living style, medical issues arise without any age bar, hence there is an increase in the risk of ailments all over the world. The data gathered from the health organizations are very hefty and complicated, these raw facts are get stored in the server of the hospitals and other health care units, from which it will become very difficult to retrieve and extract useful information. Diabetes is a prominent health challenge among different diseases all around. Many other organs are ealso get affected due to diabetes, the heart is a very delicate organ here which is having a great correlation with diabetes, according to the doctors and investigators a person who is suffering from diabetes has a high risk of cardiovascular disease. In this research paper, we have focused on Cardiac Ailments in Diabetic Patients and implemented different algorithms along with the proposed prediction model named Pretreat-Ensemble, in which we have applied three-phase preprocessing over the input dataset before applying ensemble machine learning classifier. After implementation, results have been generated and compared, based on percentage split for training and testing dataset..

Keywords

Diebates, WEKA, PCA, Ensembled Model, Cardiovascular Discease

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Abnormal Blob Detection in Diabetic Retinopathy using Image Processing Methods and Deep Neural Networks

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Ch. Sumalatha, Department of ECE, Shadan Women's College of Engineering and Technology Hyderabad, Telangana, India

Abstract

Automated detection of blood vessel structures is becoming of crucial interest for better management of vascular disease. As blood vessels can be seen as linear structures distributed at different orientations and scales in an image, various kernels (or enhancement filters) have been proposed to enhance them in order to ease the segmentation problem. This work concentrates on providing a solution for vessel segmentation, classification and localization of abnormal regions in the retinal images. Deep learning methods are employed for vessel segmentation which is further extended to classify the type of the image. The localization of the abnormal regions is detected using edge detection and contour models.

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Speech Translation using Deep Learning and Automated Speech Recognition

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Abstract

Over the years, the communication landscape has changed dramatically. Following the pandemic, there has been a significant increase in terms of digitization, as well as communication methods. Online meeting platforms are one such area where unanticipated growth might be noticed. According to a recent survey, 87 percent of people have migrated to conferencing platforms, in the last two years. Taking into account diverse meetings such as corporate and student level, good communication and some help to the attendees should be provided throughout the live meeting. Though we are primarily focused on online meetings, we also want to assist individuals in speaking more easily and understanding diverse cultures by allowing them to interact in their original language without having to worry about not knowing the language. The purpose of this study is to provide this aid by creating a Graphical User Interface for Speech Recognition that can capture, translate, and preserve spoken utterances in online meet platforms as text (syllables, words), and provide them to needy meet attendees in the simplest method feasible.

Keywords

Speech Recognition, Communication, Neural Networks, Machine Learning, Speech-to-text, Speech Translation

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