Hand Gesture Recognition for robot control Based on improved cam shift method using Deep Learning technique

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Abstract:
This research is about Hand Gesture Recognition able to express enriched information, the hand gesture recognition is widely used in robot control, intelligent furniture, and other aspects. The paper realizes the segmentation of hand gestures by establishing the skin colour model and AdaBoost classifier based on hair according to the particularity of skin colour for hand gestures, as well as the denaturation of hand gestures with one frame of video being cut for analysis. In this regard, the human hand is segmented from the complicated background, the real-time hand gesture tracking is also realized by Cam Shift algorithm. The area of hand gestures which has been detected in real time is recognized by convolutional neural network to realize the recognition of 10 common digits. These experiments show 98.3% accuracy.

Keywords: Cam Shift method, RGB colour space, HSV colour space, Kinect camera, deep learning.

A Survey towards Edge Computing, Adaptation and Challenges for the Internet of Things

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Abstract:

Internet of Things (IoT) increasingly encompasses everyday lives as well as offers vital measuring, gathering instruments to influence human decisions. Billions of sensing devices continually generate raw-data as well as exchange essential information across complicated machines to prevent device-to-device communication as well as to coordinate, manage vital intelligent assets. In order to reduce capacity constraint, artificial intelligence has evolved as a dynamic process for IoT as well as specialized computing demands. Contrasting to popular edge computing, cloud systems migrate data or warehousing to refer "edge" in terms of connection nearest to application developers. We undertake a complete survey in this research to analyze whether advanced computing enhances about efficiency of wireless communication. We also classify about the edge computing towards several architecture-based categories and evaluate their model by measuring energy consumption, bandwidth, overhead occupations and network latency. We also analyze security challenges of edge calculations, evaluate the confidentiality, integrity and availability of respectively cluster's security strategy and present a mechanism about safety assessment of edge computing systems. Lastly, we analyze the performing capabilities of several Iot systems at edge ecosystem against traditionally deployed cloud infrastructure such as intelligent transportation, intelligent grid, smart city etc.

Keywords: IoT, Edge Computing, Cloud Computing, Security, Privacy

Alex Net Classification of Fungal and Bacterial Viruses in Leafs Disease Detection

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Abstract:

Half of India's population relies on agriculture for survival. Microbial infections are a major danger to food security, yet early detection is difficult owing to a lack of infrastructure. Artificial intelligence (AI) could be used to diagnose plant illnesses automatically from raw photos using deep learning. A novel method is proposed in this research. In this phase, the image was done to extract noise and resize. The Alex Net structure, which would be based on a complicated neural network fit, was used to extract features from in this processed image using Scale Invariant Transformation (SIFT). We ran several tests using this model. For testing reasons, fifteen percent of something like the kaggle dataset is used, including photographs of healthy and ill plants. The proposed model was shown to be the most accurate in the test. The goal of this research is to create a machine learning model for detecting plant leaf diseases. Nevertheless, with in future, the model might be combined with drone or other technologies to identify tree illnesses and alert people to the location of unhealthy trees so they can receive the appropriate treatment.

Keywords: Microbial infections, food security, deep learning

Cognitive Radio network behaviour analysis in spectrum sensing and channel allocation

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Abstract:
Cognitive Radio (CR) is a versatile, insightful radio and system innovation that can naturally recognize accessible directs in a remote range and change transmission parameters empowering more interchanges to run simultaneously and furthermore improve radio working conduct. Cognitive mechanism is able to find out the free channel allocation process to secondary user with out affecting the primary person who are using the channel. To perform the channl allocation the spectrum to be sensended with the sensing mechanism which are used at data link layer under MAC region. The sensing information white spaces will be grouped as free channel spaces and will be allocated to primary user. The primary thought of the intellectual system is to give the range band to the unlicensed clients without making any damage to the earth. By utilizing the recurrence range band, we came to utilization of these intellectual systems. Right off the bat, we have to frame the system through any methodologies. we are utilizing optimization Mechanisms for path identification in cognitive Radio.

Keywords: Cognitive Radio networks, primary user, secondary user, MAC protocol, white sapces in spectrum.

PREDICTING ENERGY USAGE OF ELECTRIC APPLIANCES USING MACHINE LEARNING

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ABSTRACT:
The correct evaluation of electricity intake via way of means of domestic home equipment for destiny electricity control in residential homes is a tough trouble because of its excessive effect at the human surrounding environment. In this mission, a prediction technique is offered for electricity intake of domestic home equipment in residential homes. The purpose of the mission is the every day energy intake prediction of domestic home equipment primarily based totally on type in line with the hourly ate up energy of all domestic home equipment being utilized in residential homes. The system includes 5 stages: information source, information collection, characteristic extraction, prediction, and overall performance evaluation. Different gadget mastering algorithms were carried out to information containing historic hourly electricity intake of domestic home equipment utilized in residential homes. We have divided information into specific education and trying out ratios and feature carried out specific quantitative and qualitative measures for locating the prediction functionality and performance of every algorithm. Faster k-medoids clustering technique is used to divide the entire dataset into specific clusters primarily based totally on suggest intake information which later utilized by guide vector gadget anarchical neural community to forecast the electrical home equipment intake and top call for intake respectively.

Keywords: Prediction technique, Hourly energy consumption, Data source, Data collection, Feature extraction, Machine learning algorithms, Performance evaluation, K-medoids clustering technique

IOT Based Covid Patient Health Monitoring System using Cyber Security Applications

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Abstract:
The Internet of Things (IoT) has revolutionized the healthcare industry by enabling the development of intelligent healthcare systems. Considering the ongoing COVID-19 pandemic, there is an increased need for remote patient monitoring systems that can help healthcare providers manage patient health while minimizing exposure risks. This paper proposes an IoT-based COVID patient health monitoring system that utilizes cyber security applications to enhance patient data privacy and security. The proposed system utilizes wearable devices that continuously monitor patient vital signs and transmit the data to a cloud-based platform for analysis. The system employs various cyber security techniques such as encryption, access control, and intrusion detection to ensure the confidentiality, integrity, and availability of patient data. The system is designed to be easily scalable and customizable, enabling it to adapt to changing patient needs and healthcare system requirements. The proposed system can provide healthcare providers with real-time patient data, enabling them to make informed decisions about patient care. Additionally, the system can also help healthcare providers identify potential COVID-19 patients at an early stage, thereby enabling timely intervention and treatment. The proposed system can be a valuable tool in managing the COVID-19 pandemic, as well as in other healthcare applications that require remote patient monitoring.

Keywords: Internet of Things (IoT), COVID-19, Patient Health Monitoring, Cyber Security, Data Privacy, Data Security, Real-Time Data, Early Intervention

Electricity Consumption Prediction for smart cities using deep learning.

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Abstract:

The growing demand for electricity requires efficient planning and power generation. Smart cities need to have round the clock power supply throughout the year. The local power supply corporation needs to have sufficient reserve of electricity to meet the consumption of electricity seasonal wise. This research paper aims to calculate the prediction of consumption of electricity using multi-layer perceptron a deep learning algorithm. The prediction helps the power supply corporation to keep the required energy in reserve and meet the demand of the energy consumption. The model is evaluated with other machine learning algorithms. The proposed model accuracy matched with actual power requirement.

Keywords: electricity, power consumption, deep learning, muti layer perceptron, smart city

Disease Diagnostic Model Using Fine-Tuned Intensive Learning for Medical Image

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Abstract:
Diagnostic (CAD) techniques use image-based categorization as an effective method. Existing approaches rely primarily on structure, coloring, texture-based, and mixtures. The majority of these is issue-specific and demonstrate complementary in medical images, resulting in a scheme that cannot represent high-level problem functional requirements and has impoverished prototype generalization capability. Modern deep neural networks have made it possible to build an edge model which can generate the best classification categories from primary healthcare image data. The Disease Diagnostic Model utilizing Fine-Tuned Intensive Learning (DDM-FTIL) classification offers superior characteristics generated from a convolution neural network (CNN) with some classical characteristics. Adaptive mean filtering and adaptive histogram are used to strengthen and optimize the pixel density. We use the Gabor filter to convert the improved images. The characteristics are retrieved by the Gray-Level Co-occurrence Matrix (GLCM) as well as Local Binary Pattern (LBP) descriptors before classing the DDM-FTIL classifier. Oral cancer areas were segmented using morphometric approaches.

Index Terms: Convolutional neural network · Deep learning · Image processing, Feature extraction

Comparative Study of IoT and AI Based Computing Disease Detection Approaches

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Abstract:
The emergence of different computing methods such as cloud, fog and edge based IoT (Internet of Things) systems have given the opportunity to develop an intelligent systems for different disease detection. As compared to other machine learning models, deep learning models have gained more attention from the research community as they have shown better results with a large volume of data compared to shallow learning. However, no comprehensive survey has been reported the study of integrated IoT and computing based system that deploy deep learning for disease detection. This paper evaluates different machine learning and deep learning algorithms and their hybrid and optimized algorithms for IoT-based disease detection. In this work, we used most recent papers on IoT based disease detection system that includes computing approaches such as cloud, edge, fog are reviewed. The analysis focuses on the IoT-Deep learning architecture suitable for disease detection. It also recognizes in terms of different factor that need the attention of researchers to make better IoT disease detection systems are discussed. This study can be very helpful for researchers having the interest to develop better IoT-based disease detection and prediction systems based on deep learning with hybrid algorithms.

Keywords: IoT, Machine Learning, Deep Learning, AI

A NOVEL OPTIMIZATION ALGORITHM FOR AN EFFICIENT PROCESS SCHEDULING WITH SECURITY IN CLOUD ENVIRONMENT

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Abstract:

In recent days cloud computing technology is most popular for any type of the domain for processing the data from remote location and storage purpose also used from remote location. It provides efficient delivery and execution of large amount of data and outcome. It handles large number of requests from multiple clients at a time. Lot of challenges facing for storage different types of data, recourse allocation for clients, scheduling for mapping, managed cost and efficiency. The biggest challenge is schedule and optimized work flow of system execution in cloud environment. In this paper, we proposetri-objective resource optimization algorithm for optimized fragmentation, multiple copies of data in different locations, security and performance issues. The purpose of encryption and decryption use fused technique in this paper. It provides huge security in cloud environment. Majorly our proposed algorithm concentrates on security and efficiency of scientific workflows in cloud environment. The investigational outcomes have confirmedthe optimization steadiness and strength of algorithm.

Keywords: Cloud computing, optimization, tri-objective resource optimization algorithm,

Determination of Cognitive ability in humans using thermal face images

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Abstract:

Digital systems are blind to users' cognitive states now a day. However, systems are used for sensing cognitive states, and cognitive load specifically, that involve obtrusive technologies, such as physiological sensors attached to users' bodies. In this paper present an unobtrusive indicator of the users' cognitive load based on thermal imaging that is applicable in real-world. A commercial thermal camera is used to monitor a person's forehead and nose temperature changes to estimate their cognitive load. A case study of 12 participants has been done to assess the effect of different levels of cognitive load on facial temperature. The study showed that different levels of the Strop test and the complexity of reading texts affect facial temperature patterns, thereby giving a measure of cognitive load. To know the feasibility study for real-time assessments of cognitive load, we conducted a second study with 24 participants; we analyzed the temporal latency of temperature changes. Our system detected temperature changes with an average latency of 0.7 seconds after users were exposed to a stimulus, outperforming latency in related work that used other thermal imaging techniques. We provide empirical evidence showing how to unobtrusively detect changes in cognitive load in real-time. Our exploration of exposing users to different content types gives rise to thermal-based activity tracking, which facilitates new applications in the field of cognition-aware computing. CCS Concepts: • Human-centered computing → Human computer interaction (HCI); • Computing methodologies → Cognitive science; • Hardware → Displays andimagers Additional Key Words and Phrases: Thermal Imaging, cognitive load, Thermal latency

Keywords: Cognitive state, physiological sensors, cognitive load

Petrol Price Prediction using Deep Learning Algorithms

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Abstract:

Petrol is obtained from crude oil, and it is the major fuel used by vehicles across the world. Prediction of petrol price is a challenging since, parameters involved in the price prediction are susceptible to vary frequently. The fluctuation of price is dynamic and uncertain. This research proposes deep learning model using LSTM ensembled with multi-layer perceptron for predicting the price of petrol in world market. The model accuracy is compared and verified with the results of contemporary research, and it is found to be more accurate and realistic.

Keywords : petrol, price, LSTM, deep learning, multilayer perceptron

Design and Development of Diabetic Patient Monitoring System Using Machine Learning with Internet of Things and Node MCU

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Abstract:

Diabetes patient monitoring system is an efficient approach in nowadays that gives us thorough data on the diabetic patient. In particular with the usage of Internet of Things (IoT) devices, diabetic patient monitoring systems play a vital role in monitoring the patient's health. Diabetes patients can be monitored using diabetic patient monitoring systems, which can also record information about their body temperature, blood glucose level, and details of location. This system's function extends beyond patient monitoring because it also has the ability to classify data using machine learning methods. Because it enables diabetic patients, their families, physicians, and medical researchers to make decisions about the care of diabetic patients based on big data, predictive analytics for diabetic patients is crucial. This study examines predictive analytics utilising four different machine-learning algorithms and introduces a new system for monitoring diabetes patients. In order to select the optimum algorithm for a set of parameters, the effectiveness and accuracy of the applied algorithms are examined and compared.

Keywords: Internet of Things (IoT), Machine learning algorithms, Big data, Predictive analytics, Blood glucose levels, Body temperature

Energy Efficient Sensors Based IOT-Enabled Applications Using Wireless Sensor Networks

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Abstract:

The Wireless Sensor Network (WSN) is now being put to use in a variety of fields, including environmental engineering, agricultural, industrial and commercial applications. The technology known as sensor networks is gaining more and more attention and has a bright future ahead of it. In point of fact, there are still problems that need to be addressed regarding deployment and coverage, scalability, service quality, size, energy use, and security. IoT-related standards and research have focused their attention on the difficulties associated with energy savings on devices since these battery-limited Internet of Things devices need to be as energy-efficient as feasible. The difference in traffic characteristics, which is represented in this assessment, provides some insight into the possible integration issues that might be faced by the integration of WSNs for IoT. The usage of wireless sensor networks (WSNs) in agriculture may provide farmers access to a wealth of data. Precision agriculture (PA) is a management approach that makes use of IT to raise output and quality. A highly productive, environmentally friendly farm may result from the use of wireless sensor technology and management systems. The same process for a crop, regardless of site settings, may be avoided based on PA management. The supply of sufficient nutrients for crops and the efficient use of pesticides for the control of weeds, pests, and diseases are two ways that field management may increase PA. This paper describes new uses of WSNs in agriculture research, classifies and analyses different wireless communication protocols, and compares early research works on agriculture-based WSNs. It also provides a taxonomy of energy-efficient and energy harvesting approaches for WSNs. A number of power-saving and agricultural management strategies for long-term monitoring are emphasised, along with an examination of the difficulties and constraints faced by WSNs in the agricultural sector. The amount of chances for processing Internet of Things (IOT) data may rise as a result of these strategies.

Keywords: IOT, Healthcare, Agricultural, Wireless sensor networks, Artificial Intelligence, Wireless Biomedical Sensors.

A Comprehensive Study of Different Security Features in eBanking

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Abstract:

In Todays World, banking through mobile banking and usage of debit and credit cards for transfer of money and purchases of goods has increased exponentially due to ecommerce and the introduction of Unified Payments Interface (UPI) by the government of India which allows user easy to use facility with minimal to no charges. To work this mechanism properly, a secure framework is required to avoid the risk of cyber fraud. This article explores the various security and technologies recommended by various researchers for safe and secure use of online banking. There has been a great shortfall of security in banking applications in this type of transactions. This article presents a comprehensive study on banking security in e-banking by various techniques like blockchain, data encryption, voice recognition.

Keywords: Banking security; Blockchain; Cyber fraud; Data encryption; E-banking; Voice

THE ROLE OF AI IN HEALTHCARE SYSTEM

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ABSTRACT:

Artificial intelligence placed a vital role now a days.AI can perform smart thinking and also do decision making. It can perform many operations such as visual perception, image analysis and interpretation, voice communication, recognition and decision making. Digital hospital is one of the applications of Artificial intelligence. It is aimed to shorten the processing times in hospitals and affiliated institutions, reduce costs, and increase patient satisfaction and efficiency in work and procedures. AI will be able to collect process data and provide best output to the end user, this through machine learning algorithms and deep learning. Within the scope of smart hospital, using AI, disease diagnosis, formation and use of electronic health records, telemedicine, administrative applications, cost reduction studies, applications in cancer treatment, immunization studies, pathology, radiology and psychiatry. In addition, NLP (natural language processing) applications and topics such as writing patient reports and corporate chat bots can also be handled. In the first place, the following studies are specific to the hospital; Smart building system applications provide increased efficiency and control and safety in heat and lighting areas by using digital sensors. The displacements of materials and devices are monitored with the barcode system application. Ease of diagnosis has been provided in pathology and some other departments, especially in radiology. With the drug tracking system applications, drug savings are achieved and the problems of mixing or timing of the drugs taken by the patients are eliminated. With applications defined as smart patient rooms, applications such as smart screens, smart beds and warning bed sensors are made. With robotic surgery applications, the limits of human vision are carried beyond optical support possibilities and surgical procedures are performed in different areas by going beyond the anatomical and physiological restrictions of joint movements in very narrow areas. Studies conducted by processing electronic health records in hospitals have provided great opportunities in terms of both diagnosis and treatment. Thanks to accessing patient records via Information Technology (IT), it was possible to monitor all processes. It can even receive images and information from processes such as image storage and communication systems and magnetic resonance (MR) made with medical devices and transfer them to other integrated systems. In this context, the cost issue, which is a very basic problem of today's hospitals, will be achieved by processing the available data through AI. Ultimately, both patient satisfaction and quality improvement studies, which are the main objectives of the institutional structure, will be analyzed with AI application, and the most appropriate improvement studies will be carried out in problematic points.

Key Words: Artificial Intelligence, Smart Hospital, Artificial Intelligence In Healthcare

Dynamic Key Switching Integrated Scenarios for Performance Aware Implementations in Cloud and Integrated Internet of Things

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Abstract:
With the adoption and wide usage of smart gadgets and devices for multiple applications, the association of advanced technologies is quite prominence and needs higher degree of accuracy and performance. These are legitimately connected with the advanced innovations including Internet of Things, Internet of Everything, Internet of Vehicles, Internet of Cloud Apps and numerous others. This original copy is therefore displaying the enormous issues and research focuses in this area with the associated streams so the different elements of IoT, IoE, IoX, IoV and others can be broken down with the examination openings and the portions for various streams. In the present situation, the IoT based coordination of digital forms of money is very unmistakable whereby the distributed system is pursued and it goes under the innovation of blockchain. The blockchain innovation is likewise connected with the shrewd advances. In the present period, Blockchain Technology is one of the key territories of research just as execution explicitly in the space of cryptocurrency. Presently days, various computerized cryptographic forms of money are very conspicuous and shared all through the world in spite of tremendous analysis and discussions. Other than these purposes of research, the vehicular mix of IoT is very conspicuous that is tended to utilizing IoV that is Internet of Vehicles in the keen traffic observing and brilliant transportation. Presently days, the IoT is moving towards IoE or IoX which alludes to Internet of Everything and this is additionally tended to in this composition. The manuscript is presenting the scenarios for the implementation patterns associated with the security and dynamic key-based environment.

Keywords: Cloud Security, Dynamic Security, IoT Security, Network Security.

Identification of Nutrient Deficiency in Rice Leaves using Deep Learning Technique

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Abstract:

India is renowned for rice farming. Rice as a most important crop has a huge bang on people's health since many cultivate it for a living, it provides jobs, and many small industries are dependent on its cultivation. Significant of risk is there which losses due to various diseases and pets that can affects this planting. With the help of modern science and technology a number of research projects and methods are proposed to improve rice yields. In the plant nutrient machine, leaf specialty varies according to potassium (k) phosphorus (P), and nitrogen (N) dietary pressures. Right here we imported the dataset and finished data augmentation to enhance the mass of dataset and to obtain more accuracy. Then we applied DenseNet-121 that is one of the DenseNet group of models designed to carry out photo type.It is then evaluated with Adam, RMSprop, Gradient descent optimizers which has given 95.40%, 98.49%, 93.50% of accuracy. This entire approach is done to identify the type of fertilizer that should be used in order to increase the yield of crop.

Keywords: Convolutional Neural Network (CNN), Softmax classifier, Root Mean Square Propagation, Adam, Stochastic Gradient Descent (SGD).

AI and IOT based smart underground water management system for Agriculture

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Abstract:

India is a land of agriculture in which more than 60% of irrigated agriculture is dependent on groundwater. It is estimated that 230 cubic kilometers of groundwater per year. According to recent studies, it is estimated that the supply of groundwater in India depleted at 10-25 mm per year. Thus, the effective utilization of ground water is crucial. But it very challenging task to manage water at ground level and saving energy as well. The proposed AI and IOT based smart water system for Agriculture provides an efficient and effective utilization of ground water. In this method, the farm land shall be divided in to clusters and a bore well will be allotted for each cluster. The power connections of all the members of a cluster will be given to a panel which is connected to IOT devices. These IOT devices collect data like climatic condition, rain, atmospheric conditions and type of crop etc. at regular intervals. Processing the given data, the AI decides amount of water required for each member and distributes water accordingly. This helps in both groundwater and energy saving in agriculture.

Keywords: Agriculture, AI, Cluster, IOT.

Opinion Mining on Ukraine-Russian War Using VADER

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Abstract:

The purpose of our research paper is to discover the best method to implement opinion mining on Ukraine-Russian war based on the tweets generated by the people all over the world in twitter. We have performed VADER, Naive Bayes, and DistilBERT and have done some relative comparative study finalizing that VADER is the best approach to perform opinion mining for a vast data like Ukraine-Russian war because VADER gives high accuracy based on emotions just like a human, who understands contexts where machines cannot. We choose DistilBERT and Naive Bayes as they are some of the popular models which give the best output based on sentiment score hence we figured out that the best model which is optimal to find the sentiment accuracy based on the emotion is VADER when compared with DistilBE RT and Naive Bayes. The two main aspects which highly differentiate VADER from all other methods are Polarity and Intensity. Vader being a library has a powerful set of modifiers making it more unique which gives higher accuracy to perform opinion mining on Ukraine-Russian war tweets.

Keywords: Opinion Mining, Lexicons, Accuracy.

Classification and detection of plant disease using convolution neural network

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Abstract:

Economic status of human beings greatly affected by agriculture but improper management leads to loss of agriculture products because of plant's disease. We should supervise the growth of plants. In such cases we can use convolution Neural Network which is a class of Deep learning used majorly for image classification, other mainstream tasks such as image segmentation and signal processing. In this paper we used minimal computing resources to find different types of plant diseases. A training model VGG16 is deployed for detection and classification of different plant diseases. We get accuracy of 94.8% even under unfavorable condition by using neural network.

Keywords: Deep learning, VGG16 model, convolution neural network model.

Water Level Monitoring and Management of Dams using IoT

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Abstract:

Water being the universal solvent, an amazing coolant, and the most abundant resource on the planet; plays a highly significant role in any industry. From state-of-the-art manufacturing to the goods transportation, and even electricity production; its applications and uses are quite immense. However, without a proper water level measuring and controlling tool, managing its stock levels and distribution can be difficult. A dam is a barrier that stops or restricts the flow of surface water or underground streams. Reservoirs created by dams not only suppress floods but also provide water for activities such as irrigation, human consumption, industrial use, aquaculture, and navigability. Water is undoubtedly the most precious natural resource. In India Its applications are quite vivid in res identical, commercial, and industrial usage. However, there has been quite a decline or increase in Dam water and hence it is high time to take strict actions to improve the situation. Hence technology can play a crucial role in this and Internet of Things technology will act as a catalyst to do so. This technology although new has been implemented already in different verticals and is progressing at a rapid stage. Sharing water level through IoT is a brilliant concept to merge technology and resource conservation. It requires an intelligent mind to make things work smartly and thus, the invention of the smart water meter and level monitoring solution is the most appropriate method towards saving water through IoT.

Keywords: coolant, catalyst, IoT, underground streams

Prediction of Heart Diseases (PHDs) based on multi-Classifiers

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Abstract:
Now a days, heart disease is one among the most complicated issues and globally many people Effected from this disease. A major obstacle to clinical data analytics is the disease's prediction. In time identification of disease is crucial to save patient, so health industry collect data from across world and transforms huge amounts of raw data into useful information. With the help of this useful information, we executed various machine learning algorithms to predict heart disease. Numerous research have demonstrated that important features are crucial in enhancing the effectiveness of machine learning models. In order to improve patient accuracy and predict patient survival, it is important to identify key traits and efficient data mining approaches. A ML system may detect cardiovascular disease in its initial days using medical data, lowering fatality rates. Numerous studies have used various ML techniques to recognize cardiovascular disease or determine the extent of the victim's condition. One of the trickiest jobs in medicine is diagnosing and predicting heart illness. Finding the cause of this requires more time, Mostly for doctors and other medical professionals. Massive amounts of unstructured data produced by the healthcare sector are transformed through data mining into information that is helpful for decision-making. Numerous research have demonstrated that important features are crucial in enhancing the effectiveness of machine learning models. In this study, 303 hospitalised patients' heart disease risk was predicted using a dataset. The objective is to identify key characteristics and efficient data mining approaches that can improve the predictability of cardiovascular patients. Six categorization algorithms are used in this research to estimate the customer's mortality: Decision Tree (DT), XGBoost classifier (XGBoostSupport Vector Machine (SVM), K-Nearest Neighbors (KNN), Random Forest (RF), and Logistic Regression (SVM). In this article, we suggest a technique that aims at finding significant features by applying machine learning techniques resulting in improving the performance of CVD. The prediction model is introduced with different combinations of features and several known classification techniques. We produce an enhanced performance level with an accuracy level of 93.41% through the prediction model for heart disease with logistic regression.

Keywords: Classification; cardiac disease; multiclassifier; heart disease detection; machine learning.

Identification of Leaf Disease Using Machine Learning Algorithm for Improving the Agricultural System

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Abstract:

Diagnosing plant disease is the foundation for effective and accurate plant disease prevention in a complicated environment. Smart farming is one of the fast-growing processes in the agricultural system, with the identification of disease in plants being a major one to help farmers. Plants are one of the essential resources for avoiding global warming. The processed data is saved in a database and used in making decisions in advance support, analysis of plants, and helps in crop planning. However, diseases such as blast, canker, black spot, brown spot, and bacterial leaf damage the plants. In this paper, image processing integration is developed to identify the type of disease and help automatically inspect all the leaf batches by storing the processed data. In some places, farmers are unaware of the experts and do not have proper facilities. In such conditions, one technique can be beneficial in keeping track and monitoring more crops. This technique makes it much easier and cheaper to detect disease. Machine learning can provide a method and algorithm to detect the disease. There should be training in images of all types of leaves, including healthy and disease leaf images. The accuracy rate achieved using the proposed technique, i.e., GA-SVM is 91.3%, sensitivity is 90.72%, specificity 91.88, and precision is 92%. The results are evaluated using the matlab software tool. Five-stage detection processes are done in this paper. The stages are preprocessing, segmentation using k-Mean, feature extraction, features optimization using Firefly optimization Algorithm (FA), and classification using Support Vector Machine (SVM).

Keywords: leaf diseases, k-mean, firefly optimization algorithm, support vector machine

An improved Intrusion Recognition systems using machine learning Approach

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Abstract:

Over time, machine learning develops into a magical approach that can solve nearly every issue in any field. We are aware that intrusion detection is one of these crucial areas that needs to be improved in order to be more accurate and effective. Many academics have worked on intrusion detection and obtained better results, yet we continue to have problems with accurate intruder detection in organisations' networks, leading to disastrous outcomes. Additionally, those systems frequently fail to identify intrusions in a timely manner, which results in the intrusions causing extensive harm by the time they are discovered, which is unacceptable because discovery occurs after the damage has already been done. Considering the significance of intrusion detection for Over time, machine learning develops into a magical approach that addresses practically every problem's answer in every field.

Keywords: intrusion detection, Machine Learning, Support Vector Machine, Decision Tree.

Implementation and Application of Deep Learning in 5G IOT-Based Smart City

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Abstract:
The implementation and application of deep learning in 5G IoT-based smart city is a rapidly growing field with immense potential to transform urban infrastructure and services. Deep learning algorithms, which are a subset of machine learning, allow for the processing and analysis of vast amounts of data generated by IoT devices in smart cities, enabling intelligent decisionmaking and optimization of various urban systems. In this context, 5G networks play a crucial role in enabling high-speed, low-latency connectivity between IoT devices, cloud servers, real-time data processing and decision-making, enabling smart city services such as traffic management, waste management, energy management, and public safety. These algorithms have been successfully applied in various smart city applications, such as traffic prediction, air quality monitoring, and energy consumption optimization and it also allow for the creation of predictive models based on historical and real-time data, enabling better decision-making and optimization of urban systems. However, there are still several challenges that need to be addressed for the widespread adoption of deep learning in 5G IoT-based smart cities. These include data privacy and security, interoperability, and standardization of IoT devices. Overall, the implementation and application of deep learning in 5G IoT-based smart cities has enormous potential to enhance the quality of life of urban residents, improve sustainability and create new economic opportunities.

Keywords: Deep Learning, Machine Learning, Internet of Things (IoT), Smart City, Real-time Monitoring

Analysis of Twitter sentiment on online food services based upon elephant herd optimization with hybrid deep learning technique

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Abstract:

This article aims to assist businesses, and especially app-based meal delivery businesses, in conducting competitive research on social broadcasting and transforming social broadcasting data into data production for decision-makers. Twitter is a social media stage, making it a valuable resource for learning about people's opinions, feelings, and thoughts. For this reason, experts came up with methods to analyse the tone of tweets and determine whether they were favourable or negative. In this analysis, we compared Swiggy, Zomato, and UberEats. Customers' tweets about all these brands are obtained using R-Studio, and a deep learning-based sentiment examination approach is functional on the retrieved tweets. The pseudo-inverse learning autoencoder is able to provide feature extraction in the form of an analytic solution after pre-processing, without resorting to many iterations. In this research, we suggest framework for combining the Convolutional Neural Network (CNN) and Bi-directional Long Short Term Memory (Bi-LSTM) models. ConvBiLSTM is used, which is a word embedding model that uses numerical values to represent tweets. In this instance, elephant herd optimization is used to fine-tune the Bi-LSTM weights. Among the three firms, the results indicate that Zomato got the most positive feedback (29%), followed by Swiggy (26%), and UberEats (25%). The CNN layer takes the feature implanting as input and outputs lower features. Zomato also had fewer bad reviews than Swiggy and UberEats, with only 11% of users having a poor experience. In addition, tweets were evaluated for unfavourable views against all three meal delivery services, and suggestions for improvement were offered.

Keywords: Deep learning; Elephant herd optimization; Online food service; Pseudoinverse learning autoencoder; Swiggy; Twitter sentiment analysis; Zomato

Exploration of diverse intelligent approaches in speech recognition systems

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Abstract :

Real time automatic speech recognition system is on greater demand for the past few years in most of the embedded devices and smart phone applications. Machine learning based robust models are developed widely for speech recognition applications in the past decades. Now the researches mostly focused on deep learning approaches in order to improve the performance and better results. Research on automatic speech recognition is quite challenging due to the complication of environmental noises especially with the non stationary one. The complexity in designing separate feature extraction steps and classification models in the earlier models are eliminated in the deep learning models. This research article presents the detailed view of various research models developed for the application of automatic speech recognition, its advantages and also the various deep learning frame works for exploring future works. Artificial Intelligence revolutionizes the industrial sector to the greater extent towards the era of smart world.

Keywords: Artificial intelligence; Deep learning; Neural network; Speech recognition system

Hierarchical energy efficient secure routing protocol for optimal route selection in wireless body area networks

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Abstract:

Growth in technology has witnessed the comfort of an individual in domestic and professional life. Although, such existence was not able to meet the medical emergencies during the pandemic COVID-19 and during other health monitoring scenarios. This demand is due to the untouched Quality of Service network parameters like throughput, reliability, security etc. Hence, remote health monitoring systems for the patients who have undergone a medical surgery, bed ridden patients, autism affected subjects etc is in need that considers postural change and then forward to the caretaker in hospitals through wireless body area networks (WBAN). Security in these data are very important as it deals with the life of a subject. Unlike other conventional protocols the cluster head selection is based on the energy levels and the traffic priority data like critical and non-critical data, followed by an optimal route to forward the acquired data is identified and the data is compressed using Huffman encoding technique and encrypted using asymmetric cryptographic algorithm for secure data transmission. In this work, a Hierarchical Energy Efficient Secure Routing protocol (HEESR) is proposed that categorizes the deployed body nodes in to direct node and relay node based on the threshold vale. This protocol mainly appends security and routing efficiency in a hierarchical pattern through data prioritization and out performs the other conventional routing protocols by yielding a better energy consumption of 6%, throughput 92% and security of 93%, which has balanced the packet drop rate considerably and deliver the data within the stipulated time period.

Keywords: Cluster head; Compression; Hierarchical routing; Optimal route; Security; Wireless body area networks

A Sustainable Integrated Rural Water Management with emphasis on Network Prioritization, Household Water Treatment and Real-Time Feedback

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Abstract:

Rural water infrastructure management, an essential aspect of sustainable living in rural areas, is an ignored subject compared to urban areas. For instance, multiple urban studies, such as integrated urban water management (IUWM) and water sensitive urban design (WSUD), discuss the structured management of water, land, and resources for acquiring the most lucrative and societal benefits. However, many rural water infrastructures lack proper planning, coordination, and monitoring. Besides, minimal applied decision making at lower levels misleads to the inefficiency of rural water sources. Research gaps exist in long term water quality testing and continuous monitoring of stored water in rural areas. The current study aims to develop a decentralized system, termed Sustainable Integrated Rural Water Management (SIRWM), for overcoming the challenges plaguing rural areas by utilizing rainwater harvesting (RWH) as the primary source in a study area in Rajasthan, India. The overall setup of the SIRWM targets to diminish over-reliance on groundwater sources in areas facing drought. The study comprises five segments, in the sequential order of survey and data collection, network prioritization, implementation of RWH system using Building Information Modelling (BIM) tools, installation of water filters at households, and collection of real-time feedback through interactive voice response system (IVRS) (an android application) in a selected community of the study area. The integration of all these components results in achieving a robust rural water management.

Keywords: Sustainable living, water management

Identification of Parkinson's Disease using Deep Neural Network with RESNET50

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Abstract:

Recent Parkinson's disease (PD) research has focused on recognizing vocal defects from people's prolonged vowel phonations or running speech since 90% of Parkinson's patients demonstrate vocal dysfunction in the early stages of the illness. This research provides a hybrid analysis of time and frequency and deep learning techniques for PD signal categorization based on ResNet50. The recommended strategy eliminates manual procedures to perform feature extraction in machine learning. 2D time-frequency graphs give frequency and energy information while retaining PD morphology. The method transforms 1D PD recordings into 2D time-frequency diagrams using hybrid HT/Wigner-Ville distribution (WVD). We obtained 91.04% accuracy in five-fold cross-validation and 86.86% in testing using RESNET50. F1-score achieved 0.89186. The suggested approach is more accurate than state-of-the-art models.

Keywords: 2d time-frequency; Artificial intelligence; Deep learning; Ht/wigner-ville distribution; Parkinson's disease; Resnet50; Speech impairment

Holoentropy based Correlative Naive Bayes classifier and MapReduce model for classifying the big data

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Big data is the recent imminent technology, which can provide large benefits to the business administration. Owing to such huge volume, it becomes very complicated to ensure effective analysis by the existing techniques. The complications can be related to analyze, capture, sharing, storage, and visualization of the data. To tackle these challenges, a novel classification technique using Holoentropy based Correlative Naive Bayes classifier and MapReduce Model (HCNB-MRM) is proposed. The proposed HCNB, which is designed by combining the Holoentropy function with the correlative based Naive Bayes classifier deals with both high-dimensional data sets as well as extensive datasets to improve the benchmark, and classify the data based on dependent assumption. Therefore, the proposed HCNB-MRM is used to make the process simpler and to choose the best features from big dataset. The proposed HCNB with the MapReduce Model maximizes the performance of big data classification using probability index table, and posterior probability of the testing data samples. The performance of the proposed HCNB-MRM is evaluated using three metrics, such as accuracy, sensitivity, and specificity. From the experimental results, it is analyzed that the proposed HCNB-MRM obtains a high classification accuracy of 93.5965% and 94.3369% for the localization dataset, and skin dataset when compared with the existing techniques. © 2019, Springer-Verlag GmbH Germany, part of Springer Nature.

Keywords: Big data classification; CNB classifier; Correlation function; Holoentropy function; MapReduce model

Smart Food Fare Canteen: Billing and Serving Automation

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These days, technology is developing and improving in many ways. The canteen bill system is the real-time application considered. In the conventional arrangement, the user will take a static bill from the bill counter for the type of food that may be required to eat. This causes many users to encounter strange kinds of problems, such as some users may waste food because it is unappealing, other users may not consume as much food as they should, and some users may take more than they are entitled to. In these situations, the circumstance that favours a token for the trail to determine whether the meal is good with a specific 10% of the fare of that item must be corrected. By utilising debit cards or QR codes with approved payment gateway applications, manual billing is eliminated and automated billing is considered. After the trail of food items is complete, the user must pick which products to consume among those that have been assigned prices, scanners, and QR codes. By preventing bill waste, the environment is preserved, and indirectly protected trees are preserved. In the future, businesses would need automated invoicing and effective catering of high-quality meals and related things. This creates two portions, one of which is a trial session and the other of which is a genuine food court session. Despite being different sessions, they are linked.

Keywords: Billing system, QR code, trail session, real court session, automation.

Constructive hierarchical data-sharing approach in cloud environment for Security and privacy preservation

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Abstract:
With the vast development in the cloud computing environment, many cloud users intend to outsource the data to a remote location and share the data with multiple users. The hierarchical model is an extensively used data organization process. It is highly complex to guarantee integrity, privacy, and confidentiality of the data and the structure of the model when the sensitive data is held in this manner. This research attempts to give a solution to hierarchically ensure the security and privacy of the information while data sharing occurs. A constructive hierarchical data sharing (CHDS) method is proposed to adopt symmetric encryption over the rooted hierarchical graph structure. The hierarchical graph model deals with incoming data features to establish the model's privacy and authenticity. Based on this model, the proposed CHDS is known to be transparent, secure, and confident in the public environment. Here, performance metrics like computational complexity, key generation, prediction accuracy, and execution time are evaluated. The outcomes provide the security of the multi-party environment without forfeiting sensible resources when the hierarchical model grows to a more significant number of siblings, edges, and vertices. The proposed CHDS gives a better trade-off when compared with various existing approaches. © 2022 Taylor & Francis Group, LLC.

Keywords: Cloud; data sharing; hierarchical model; multi-party; security

Internet of Medical Robotic Things (IoMRT) Robotics in Remote Monitoring Healthcare

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Abstract:

An electro-mechanical device that is programmed to be operated by a computer is referred to as a robot. Robots can function autonomously, somewhat autonomously, or under remote control. Robots can be utilised for a wide range of jobs, including those around the home, in the workplace, in space exploration, and in contemporary medical and healthcare applications. Sensors, hardware, and software are all included in modern and advanced robots. Software delivers the essential intelligence signal that directs mechanical components to carry out tasks. IoMRT and architecture, the notion of a Li-Fi system, the connectivity of IoMRT with Li-Fi, the methodology and analysis of surgical robots with Li-Fi, certain technical difficulties, security concerns, and future potential. The principle objectives are (1) to design the architecture and conceptual method of IoMRT, and its limitations and research challenges, (2) optimization of the proposed idea with prototype model, and (3) recognize vital research bearings in this entrancing subject.

Keywords: IoMRT, Sensor devices, Li-Fi Technology

Optimal outcomes based on provenance to assess saas providers services in cloud environment for Performance audit trail integrated approach

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Abstract:

In the promotion of cloud computing amenities provenance aware approaches play an optimistic role in policy management. The auditor retrieves the policy structure from the Meta data form and apply a monitoring approach mechanism on policy range to its respective commitments which are endorsed in SLA by the consumer and provider. The disparate ways in policy structures evaluated in different layers of cloud architectures addresses the issue of policy management. In this work we propose provenance aware audit trail assessment in regard of policy monitoring for SaaS provisioning. This auditor trail assessment decision model allows the consumer to express his sensitivity on provider's offers in tracking the policy range at an instance in monitoring scenario.

The auditors assess the policy range which was tagged in SLA for the commencement of SaaS provisioning between consumer and provider.

Keywords: Audit trail; Cloud Auditor; Policy Monitoring; Provenance aware approach; Service Level Agreement (SLA)

DDOS Attack Detection Algorithm to Increase Network Lifetime in Cloud Environment

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Abstract:

DDoS attacks, one of the oldest forms of cyberthreats, continue to be a favorite tool of mass interruption, presenting cybersecurity hazards to practically every type of company, large and small. And while some firms may assume they are limited targets for a DDoS assault, the amount of structured internet access to power corporation services and apps exposes everyone to downtime and poor performance if the infrastructure is not protected against such attacks. As a matter of fact, according to IDC, DDoS attacks are predicted to expand at an 18 percent compound annual growth rate (CAGR) through 2023, indicating that it is past time to enhance investment in strong mitigation systems. We propose using correlations between missing packets to increase detection accuracy.

Keywords: Algorithm; Attack Detection; Cloud; cloud network; DDOS; Science

A Survey on Classification of MRI Images for Brain Tumor Identification using Deep Learning Techniques

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Abstract:

The rarity and variety of tumors make it difficult to gauge a patient's prognosis after being diagnosed with one. A brain tumor, a disease that can be fatal, threatens the most valuable human life, and it is a difficult work for a doctor to diagnose the tumor accurately and promptly. The aberrant proliferation of brain cells results in a condition known as a brain tumor. Manual identification is a time-consuming and difficult method that can lead to inaccuracies in the results of tumor identification using Magnetic Resonance Imaging (MRI). MRI images play a vital role in tumor site determination. These limits necessitate the use of computer-assisted techniques. It is common practice to utilize MRI scans to identify a variety of tissue abnormalities, to look for tumors, and to assess whether a tumor is still present or returning. Deep learning (DL) algorithms are being utilized in neuroimaging to detect brain cancers using MR images as artificial intelligence advances. Physicians need an automated method to detect and classify brain cancers. MRI-based segmentation of brain approaches will be reviewed in this research. It is also possible to use deep learning approaches to analyses and evaluate vast quantities of MRI-based image data quickly and objectively. It is critical that medical photographs be processed to aid in the identification of various disorders. The information and expertise of the physician are critical in the diagnosis of brain tumors. There is a slew of review studies about classic MRI-based approaches for classifying brain tumor pictures. Deep learning approaches were used to classify brain cancers as glioma, meningioma, or pituitary. Deep learning methods for automatic segmentation have recently gained popularity since they produce cutting-edge results and are more suited to dealing with this challenge. Conclusions and future advances are also discussed in this section to ensure that MRI-based tumor segmentation methods can be implemented in daily practice.

Keywords: Brain Tumor Detection; Classification; Deep learning; MRI; Segmentation

Diabetic Disease Prediction Using XG-BOOST & Machine Learning Algorithms

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Abstract:
Numerous people suffer from diabetes mellitus, one of the most dangerous diseases. The parametric are Age, obesity, inactivity, genetic diabetes, a poor diet, high blood pressure, and other factors can all contribute to diabetes mellitus. Diabetes increases a person's risk of developing various illnesses, including heart disease, renal disease, stroke, vision problems, nerve damage, etc. A variety of tests are currently used in hospitals to get the data needed to diagnose diabetes, and depending on that diagnosis, the proper therapy is given. It is possible to predict and prevent diabetes by looking into fundamental characteristics of the disease using analytical data mining techniques. This study suggests an XG-Boost based diabetes prediction system, separating the numerical features while extracting convinced significant characters from the text features of the experiment data. Results indicate that the modified XGBoost algorithm with feature combination provides an accuracy of diabetes prediction of 80.2%, making it a practical and efficient method. The categorization and prediction accuracy of the current approach is not very good. To better categorize diabetes, I have developed a diabetes prediction model that takes into account a few more characteristics in addition to the standard ones like glucose, body mass index, age, insulin, etc. Compared to the old dataset, the new dataset improves classification accuracy. Additionally, a pipeline model for diabetes prediction was imposed to enhance classification accuracy.

Keywords: Diabetes Prediction, XG-BOOST, Data Mining Techniques.

Road Lane Lines Detection using Deep Learning Algorithms

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Abstract:
Lane detection performs a important function in making the concept of the self reliant automobile is a fact. Traditional lane detection methods want big home made functions and post processing strategies, which make the fashions unique characteristic-orientated, and vulnerable to instability for the versions on road scenes. In latest years, Deep Learning (DL) fashions, specially Convolutional Neural Network (CNN) models have been proposed and utilized to perform pixel-degree lane segmentation. However, maximum of the methods recognition on achieving high accuracy while thinking about dependent roads and suitable weather situations and do not placed emphasis on testing their fashions on defected roads, especially ones with blurry lane lines, no lane strains, and cracked pavements. Moreover, lots of those CNN-based fashions have complicated structures and require excessive-end systems to function, which makes them pretty unsuitable for being implemented in embedded gadgets. Considering these shortcomings, on this project a novel CNN model was delivered, named LLDNet based on an encoder–decoder architecture that is addition to road conditions. A channel interest and spatial interest module are integrated into the designed architecture to refine the characteristic maps for attaining outstanding effects with a lower range of parameters. In this project the hybrid dataset is used to teach our model, which become created through combining separate datasets, and feature compared the model with a few latest encoder– decoder architectures. Numerical outcomes at the applied dataset show that our model surpasses as compared methods in terms of cube coefficient, IoU and the size of the models. Moreover, accomplished a full-size experiments on the videos of different roads in China. The visualization outcomes showcase that our model can stumble on the lanes as it should be in each structured and defected roads. Experimental consequences elicit that our designed approach is capable of detecting lanes as it should be and is ready for sensible implementation.

Keywords: Semantic segmentation, Deep Learning (DL), Convolutional Neural Network (CNN)

An Efficient Face Mask Detector with PyTorch and Deep Learning

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Abstract:
The outbreak of a coronavirus disease in 2019 (COVID-19) has created a global health epidemic that has had a major effect on the way we view our environment and our daily lives. The Covid-19 affected numbers are rising at a tremendous pace. Because of that, many countries face an economic catastrophe, recession, and much more. One thing we should do is to separate ourselves from society, remain at home, and detach ourselves from the outside world. But that's no longer a choice, people need to earn to survive, and nobody can remain indefinitely within their homes. As a precaution, people should wear masks while keeping social distance, but some ignore such things and walk around. To develop a Face Mask Detector with OpenCV, PyTorch, and Deep Learning that helps to detect whether or not a person wears a mask. A Neural Network model called ResNet is trained on the dataset. Furthermore, this work makes use of the inbuilt Face Detector after training. Finally, we predict whether or not a person is wearing a mask along with the percentage of the face covered or uncovered. The validation results have been proposed to be 97% accurate when compared to applying different algorithms. This Face Mask Detection System was found to be apt for detecting whether or not people wear masks in public places which contribute to their health and also to the health of their contacts in this COVID-19 pandemic.

Keywords: Neural Networks, Face Mask Detector.

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A scalable approach of software design quality for pattern detection and design rationale

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Abstract:
They either perceive exact model dispatches or haven't a y rules picked which guide to show up for first among the varied plans. to beat these two imprisonments, we propose to improve any model recognizable proof methodology by going before it by a groundwork " sniffing" step that distinguishes the potential nearness of models and demands the contender structures with respect to their degree of similarity to style pieces. Truth be told, the conspicuous evidence of completed design models might be significant for the valuation for a present arrangement and gives the grounds to also code/structure redesigns. In any case, existing model acknowledgment approaches overall have issues in perceiving plans in a perfect way. As a bit of the re building technique, the conspicuous verification of setup structures offers critical information to the organizer. Our approach utilizing plan estimations to depict the structure and semantics of the contrasted arrangement structures.

Keywords: Conspicuous; Imprisonments; Plan estimations; Semantics; Sniffing

Detection and Classification Using ML/DL of Hybrid SFNet Model for Bone Fracture

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Abstract:

In this study, we proposed a novel multi-scale feature fusion of a convolution neural network (CNN) and an improved canny edge algorithm that segregate fracture and healthy bone image. An expert performs bone fracture diagnosis using an X-ray image manually, which is a time-consuming process. The development of machine learning (ML), as well as deep learning (DL), has set a new path in medical image diagnosis. An expert performs bone fracture diagnosis using an X-ray image manually, which is a time-consuming process. The hybrid scale fracture network (SFNet) is a novel two-scale sequential DL model. This model is highly efficient for bone fracture diagnosis and takes less computation time compared to other state-of-the-art deep CNN models. After that, grey images and their corresponding canny edge images are fed to the proposed hybrid SFNet for training and evaluation. The innovation behind this research is that it works with an improved canny edge algorithm to obtain edges in the images that localize the fracture region. Furthermore, the performance is also compared with the state-of-the-art deep CNN models on a bone image dataset. Our results showed that SFNet with canny (SFNet + canny) achieved the highest accuracy, F1-score and recall of 99.12%, 99% and 100%, respectively, for bone fracture diagnosis. It showed that using a canny edge algorithm improves the performance of CNN.

Keywords: bone fracture; canny; classification; CNN; fusion; hybrid; X-ray

Mitigating Software Risks in Health Applications: A Comprehensive Framework for Risk Assessment and Management

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Abstract:
Software risk assessment and mitigation is an important aspect of the development of health applications. Health applications, such as electronic health records and medical device software, are critical systems that require a high level of quality and reliability. The software risk assessment and mitigation process involves identifying potential risks associated with the software development process and the application itself and developing strategies to reduce or eliminate these risks. There are several software risk assessment and mitigation frameworks and standards that can be used in the development of health applications. These include ISO 14971, which provides a framework for risk management in medical devices, and FDA guidance documents, which provide guidance on risk assessment and mitigation in the development of medical device software. The software risk assessment and mitigation process involves several steps, including risk identification, risk analysis, risk mitigation, and risk monitoring. Risk identification involves identifying potential risks associated with the software development process and the application itself. Risk analysis involves analyzing the identified risks to determine their likelihood and impact. Risk mitigation involves developing strategies to reduce or eliminate the identified risks. Risk monitoring involves tracking the identified risks and the effectiveness of the risk mitigation strategies. Effective software risk assessment and mitigation in health applications can help to ensure that these critical systems

Keywords: Risk, Mitigation, Assessment, Analysis, Impact

Novel Hybrid Residual Neural Network enabled Parkinson's Disease Prognostication

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Abstract:

Parkinson's disease is a chronic retrogression sickness mainly occur due to neurological disorders. Several heterogeneous variety of symptoms like vocal changes, rigidness, bradykinesia, coordination disabilities dysarthria etc. leads to such kind of disorders and results in death if not properly diagnosed and necessary medication has been taken on right time. As the symptoms of this disease vary from person to person, it is quite challenging for the medical officials to predict such kind of disease and its level for further medication. Nowadays deep learning approaches plays a major role in variety of applications in provision of accurate detection, prediction, classification. Its incorporation in medical sector is highly vital. In this research article, hybrid residual neural network is used for the prediction of parkinson's disease and the proposed model provides superior performance with the accuracy of 89.31% while compared with other traditional models such as SVM, ANN, CNN which gives the accuracy level of 79.62%, 81.29%, 84.51%.

Index Terms: Parkinson's disease, Deep learning, Neurological disorder

Based upon Ardino software, wireless sensors network system for disaster management

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Abstract:
Now a day's mechanical autonomy innovation has turned out to be extremely prominent in all fields of human life. Robots have been connected at various spaces to co-ordinate community conduct in dispersed frameworks and giving an effective premise to proactive utilizations of complex nature, particularly in substantial scale catastrophes requiring complex errands to be performed by bunches under outrageous time and asset limitations. That is the reason Robotics was picked as a point of convergence of this paper of its possibly transformative part both in a positive and negative route in tending to an extensive variety of advancement challenges, from environmental change, human services, and farming to lodging, transportation, and instruction.

Keywords: Arduino; Automation and Robotics; Post Disaster; WSN

Automated Seasonal Crop Mapping Using Machine Learning Algorithms

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ABSTRACT:

The automated seasonal crop mapping using machine learning techniques is proposed in this paper. This method utilizes aerial imagery and historical crop data to train a deep learning model for crop classification. High-resolution aerial imagery is used for testing the model and performance metrics such as overall accuracy, precision, and recall is used for evaluating the model. The proposed method is able to classify different crop types at different growth stages with a high degree of accuracy. The results show that the proposed method outperforms traditional methods of crop mapping, such as manual annotation or hand-crafted feature-based classification. Additionally, the proposed method can be easily scaled to cover large areas and can provide near real-time crop mapping information. Furthermore, the ability to map crops in near real-time can have significant implications for precision agriculture, as it can help farmers optimize crop yields, reduce water and fertilizer usage, and even detect crop diseases early on. the proposed method of automated seasonal crop mapping using machine learning techniques is a promising solution for providing accurate and up-to-date crop mapping information. The method has the potential to revolutionize precision agriculture and improve crop yields, while reducing environmental impact. Overall, this research paper aims to demonstrate the potential of machine learning techniques in crop mapping and the benefits it can bring to precision agriculture.

Index Terms: Landmark location, historical crop data, high resolution aerial imagery, performance metrics.

A Novel Machine Learning Model for Early detection of Cardiomegaly

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Abstract:
Cardiomegaly is a medical condition where the heart becomes enlarged, which can cause various health problems such as heart failure, arrhythmias, and cardiac arrest. Early detection of cardiomegaly is crucial for effective treatment and prevention of further complications. Hybrid machine learning techniques can be utilized for the early detection of cardiomegaly. One possible approach to using a hybrid machine learning technique for detecting cardiomegaly would be to use a combination of feature extraction techniques, such as principal component analysis (PCA), and deep learning methods, such as convolutional neural networks (CNNs). First, a dataset of cardiac images (such as X-rays or MRI scans) would be collected and preprocessed to extract relevant features. Next, PCA would be used to reduce the dimensionality of the data and extract the most important features. These features would then be fed into a CNN, which would be trained on a large dataset of labeled images to learn how to classify normal and enlarged hearts. Once the CNN is trained, it can be used to predict whether a new cardiac image shows signs of cardiomegaly. This approach can be further refined by incorporating additional data sources, such as patient medical histories and other clinical data, to improve the accuracy of the model. Overall, a hybrid machine learning technique combining feature extraction and deep learning methods has the potential to be an effective tool for the early detection of cardiomegaly, which can lead to better outcomes for patients with this condition.

Keywords: Cardiomegaly, MRI, Convolutional Neural Networks (CNNs), PCA, Machine Learning

Adopting an Optimistic Plan of Action Towards Crime Detection and Digital Forensic Techniques

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Abstract.
Online shopping is very common every in day-to-day life, especially youngsters' involvement is more. The preponderance of products in their collection is mostly from online shopping. On the other hand, we can't test or check the quality of products in online shopping, this may be drawback for some products. In those circumstances, product reviews play a vital role in purchasing a product. Sentiment analysis is one of the methods by applying that customer can identify the best quality product effortlessly and gives perfect decision-making for the product choice. But people across countries who speak different languages might face difficulty reading the comment and analyzing the situation, as comment in different languages. To overcome this problem, the author proposed a solution in which a user can do languages identification, translation, and analysis of the text review data. In this solution, author using a Google Language Translator (GLT), to identify and translate the language to any destination or requested language that user want to analyze the text. VADER makes that analysis and gives the best result for the product reviews. The experimental results of the proposed solutions were well-defined and established in sentiment analysis tasks.

Keywords: Sentiment analysis, NLP, Google Language translator, Online product reviews, Preprocessing, VADER, Opinion mining.

Development of IOT and ML based Smart Student Healthcare Monitoring System and Attendance system

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Abstract:
After post Covid, everyone is focusing on their health and diet for happier life. Hence, it is one of the challenging tasks to monitor the health of students while entering into the class. The initiation of Internet of Things (IoT) and Machine Learning (ML) technologies smooths the progress of healthcare from time to time in a daily life. This proposed method mainly focusing on a smart healthcare system in IoT and ML environments that can monitor a student's basic conditions of health as well as the class room condition where the students able to learn new things without any delay. In this system, IOT based sensors are used to record all the desired data of the students using various sensors like body temperature sensor, heart beat sensor, room temperature sensor, CO sensor, and CO2 sensor etc. Based on the given data, we can check whether the student's health is perfect or not by applying ML techniques. The condition of the students is reported via a portal to administrative staff and health care department, where they can easily process and analyze the current situation of the students. This prototype is well suitable for all academic people who wish to monitor and manage the health of students which improvise the effectiveness of the education system.

Keywords: Smart Healthcare, Internet of things, Machine Learning, Sensors.