3rd International Conference on "Recent Innovations in Computer Engineering and Information Technology"

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on 15th & 16th December 2023

(ICRICEIT-2023) **PROCEEDINGS**

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Department of Information Technology

3rd International Conference
on
"Recent Innovations in Computer Engineering and Information Technology (ICRICEIT-2023)"

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&
Editor in Chief

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Sri. M. LAXMAN REDDY
CHAIRMAN

MESSAGE

I am extremely pleased to know that the Department of Information Technology of SMEC is organizing 3rd International Conference on "Recent Innovations in Computer Engineering and Information Technology–2023 (ICRICEIT–2023)" on 15th and 16th of December 2023. I understand that the large number of researchers has submitted their research papers for presentation in the conference and for publication. The response to this conference from all over India and Foreign countries is most encouraging. I am sure all the participants will be benefitted by their interaction with their fellow researchers and engineers which will help for their research work and subsequently to the society at large.

I wish the conference meets its objective and confident that it will be a grand success.

M. Laxman Reddy

M. LAXMAN REDDY
Chairman

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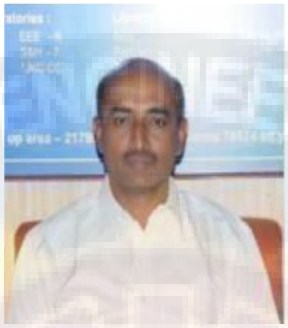
Sri. G. CHANDRA SEKHAR YADAV
EXECUTIVE DIRECTOR



MESSAGE

I am pleased to state that the Department of Information Technology of SMEC is organizing 3rd International Conference on "Recent Innovations in Computer Engineering and Information Technology -2023 (ICRICEIT–2023)" on 15th and 16th of December 2023. For strengthening the "MAKE IN INDIA" concept many innovations need to be translated into workable product. Concept to commissioning is a long route. The academicians can play a major role in bringing out new products through innovations.

I am delighted to know that there are large number of researchers have submitted the papers on Interdisciplinary streams. I wish all the best to the participants of the conference additional insight to their subjects of interest.

I wish the organizers of the conference to have great success.

G. CHANDRA SEKHAR YADAV
Executive Director

Dr. P. SANTOSH KUMAR PATRA
GROUP DIRECTOR

ISBN: 978-93-91420-66-6

MESSAGE

I am delighted to be the Patron & Program Chair for the 3rd International Conference on "Recent Innovations in Computer Engineering and Information Technology-2023 (ICRICEIT–2023)"on 15th and 16th of December 2023. I have strong desire that the conference to unfold new domains of research among the Information Technology fraternity and will boost the knowledge level of many participating budding scholars throughout the world by opening a plethora of future developments in the field of Information Technology.

The Conference aims to bring different ideologies under one roof and provide opportunities to exchange ideas, to establish research relations and to find many more global partners for future collaboration. About 114 research papers have been submitted to this conference, this itself is a great achievement and I wish the conference a grand success.

I appreciate the faculties, coordinators and Department Head of Information Technology for their continuous untiring contribution in making the conference a reality.

(Dr. P. SANTOSH KUMAR PATRA)
Group Director

Dr. M SRINIVAS RAO
PRINCIPAL

ISBN: 978-93-91420-66-6

MESSAGE

Contemporary Society is technological and relies on technology for various aspects of daily life. There is no life without digital platforms, Internet, apps, codes, etc. Navigating the complexities of a technological society requires a balance between embracing innovation and addressing the challenges that come in the way. Considering the immediate needs of the technical Society, SMEC has been organizing International Conferences every year which really help a candidate in acquiring technical skills and making themselves familiar with the new inventions.

International Conferences are a Perfect Platform for enthusiastic researchers to come up with their innovative ideas, and I am delighted that SMEC is organizing the International Conference on Recent Innovations in Computer Engineering and Information Technology this academic year as well to enhance the skills of desiring participants. The showcase of new ideas and the latest technological advancements through this Conference would facilitate the transfer of technology, helping participants to get updated with the latest tools and methodologies. I firmly believe that this Conference serves as the catalyst for change by bringing attention to pressing issues in different fields, encouraging discussions, fostering collaboration, and promoting initiatives that address different challenges on a global scale. It is an excellent opportunity to broaden our knowledge, establish meaningful connections, and contribute to advancing engineering research. I assure you that the commitment to excellence in education and research is reflected in this Conference, providing a unique platform for learning and growth.

Around 114 research papers were submitted to this Conference. I wish the authors a promising future and the Conference a grand success.

I appreciate the continuous efforts and dedication of the HOD of Information Technology and faculty members for their invaluable contribution to advancing global discourse. My most profound appreciation to the organizers and coordinators for organizing a conference of such caliber.

Dr. M. Srinivas Rao
Principal

Dr. SANJAY KUMAR SUMAN
DEAN R&D

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MESSAGE

Research, curiosity and discovery has been in existence ever since man's presence on this planet millions of years ago, civilization has been characterized by curiosity and discovery. Therefore, the curiosity to explore what will happen, how it happens, is there a better way to do it, has been the driving force behind all research efforts. During the past few decades, the engineering faculties have taken a number of initiatives to reorient the engineering machinery to play leading roles in the industrial development process.

I am delighted to acknowledge the international conference on 3rd International Conference on "Recent Innovations in Computer Engineering and Information Technology - 2023 (ICRICEIT–2023)" on 15th and 16th of December 2023 organized by the Department of Information Technology. I appreciate organizing team for showing their keen interest in organizing a successful conference to provide a platform for contributors to explore new ideas and exchange research findings among researchers.

I thank the support of all students, authors, reviewers, conference team, faculty members, and conference Convenor for making the conference a grand success.

Best Wishes

Dr. Sanjay Kumar Suman
Dean R&D

Dr. V K SENTHIL RAGAVAN
HOD - IT & CONVENER

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MESSAGE

The world is always poised to move towards new and progressive engineering solutions that results in cleaner, safer and sustainable products for the use of mankind. India too is emerging as a big production centre for world class quality. Computer Science, Electronics, Information Technology and Electrical Engineering play a vital role in this endeavour.

The aim of the 3rd International Conference on "Recent Innovations in Computer Engineering and Information Technology-2023 (ICRICEIT–2023)" being conducted by the Departments of Information Technology of SMEC, is to create a platform for academicians and researchers to exchange their innovative ideas and interact with researchers of the same field of interest. This will enable to accelerate the work to progress faster to achieve the individuals end goals, which will ultimately benefit the larger society of India.

We, the organizers of the conference are glad to note that more than 122 papers have been received for presentation during the hybrid mode conference. After scrutiny by specialist 114 papers have been selected, and the authors have been informed to be there at the online platform or in the seminar hall for presentations. Steps have been to publish these papers with ISBN number in the Conference Proceedings and all the selected papers will be published in Scopus / UGC recognized reputed journals.

The editorial Committee and the organizers express their sincere to all authors who have shown interest and contributed their knowledge in the form of technical papers. We are delighted and happy to state that the conference is moving towards a grand success with the untiring effort of the faculties of Information Technology of SMEC and with the blessing of the Principal, the Group Director and the Management of SMEC.

Best Wishes

V.K. Senthil Raga

Dr. V K SENTHIL RAGAVAN
HoD-IT and Convener

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Paper ID: ICRICEIT-23-001

Exploring Decision Based Black Box Attacks on Face Forgery Detection

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ABSTRACT

Face forgery generation technologies generate vivid faces, which have raised public concerns about security and privacy. Many intelligent systems, such as electronic payment and identity verification, rely on face forgery detection. Although face forgery detection has successfully distinguished fake faces, recent studies have demonstrated that face forgery detectors are very vulnerable to adversarial examples. Meanwhile, existing attacks rely on network architectures or training datasets instead of the predicted labels, which leads to a gap in attacking deployed applications. To narrow this gap, we first explore the decision-based attacks on face forgery detection. However, applying existing decision-based attacks directly suffers from perturbation initialization failure and low image quality. First, we propose cross-task perturbation to handle initialization failures by utilizing the high correlation of face features on different tasks. Then, inspired by using frequency cues by face forgery detection, we propose the frequency decision-based attack. We add perturbations in the frequency domain and then constrain the visual quality in the spatial domain. Finally, extensive experiments demonstrate that our method achieves state-of-the-art attack performance on Face Forensics++, Celeb DF, and industrial APIs, with high query efficiency and guaranteed image quality. Further, the fake faces by our method can pass face forgery detection and face recognition, which exposes the security problems of face forgery detectors.

Key Words: Adversarial examples, Face forgery detection, Black-box attacks, Face recognition.

Paper ID: ICRICEIT-23-002

Optimal Classification of Simulated Cyber-Physical Attack on Water Subsystem using Machine Learning

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ABSTRACT

Internet of Things (IoT) enabled cyber physical systems such as Industrial equipment's and operational IT to send and receive data over internet. This equipment's will have sensors to sense equipment condition and report to centralized server using internet connection. Sometime some malicious users may attack or hack such sensors and then alter their data and this false data will be report to centralized server and false action will be taken. Due to false data many countries equipment and production system got failed and many algorithms was developed to detect attack, but all these algorithms suffer from data imbalance (one class my contains huge records (for example NORMAL records and other class like attack may contains few records which lead to imbalance problem and detection algorithms may failed to predict accurately). To deal with data imbalance, existing algorithms were using OVER and UNDER sampling which will generate new records for FEWER class only. To overcome from this issue, we are introducing novel technique without using any under or oversampling algorithms. The proposed technique consists of 2 parts. Auto encoder which will get trained on imbalanced dataset and then extract features from it and these extracted features will get trained with DECISION TREE algorithm to predict label for known or unknown attacks. Decision tree get trained on reduced number of features obtained from PCA (principal component analysis) algorithm. Deep Neural Network (DNN) get trained on known and unknown attacks. If any records contain attack signature, then DNN will identify attack label or class and attribute them.

Key Words: PCA, DNN, Data imbalance, Detection Algorithm, Oversampling.

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Paper ID: ICRICEIT-23-003

An Advanced System for Real-time Contactless Vital Signs Estimation

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ABSTRACT

In recent decades, measuring vital signs has been a popular topic for many researchers. The system for monitoring vital signs benefits humans in many aspects, such as patient health care and disease prevention for elderly people. As important vital signs, the heart rate and breathing rate, which is also called respiration rate (RR), have been attracting increasing attention and many methods for heart rate (HR) and breath rate (BR) detection have been proposed. The methods for measuring the HR and BR can mainly be divided into contact methods and non-contact methods. Contact methods, as the traditional techniques, are the most widely used measurement methods for signs because of their high accuracy. Most contact methods rely on Electro Cardio Graphy (ECG) or Photo Plethysmo Graphy (PPG). As the most popular way, an ECG signal containing a considerable amount of useful information on vital signs is obtained by placing adhesive gel electrodes on a person's chest or limbs. PPG is an optical technique that can be used to detect variations in Blood Volume Pulse (BVP) ((i.e., changes in the detected light intensity) in the micro vascular bed of tissue. Meanwhile, the changes of the BVP contain useful information on the cardiovascular system, which could estimate the HR and BR. A PPG sensor is usually placed on the fingertip to effectively monitor the variations of the blood flow, because transmitted light can be easily detected. Therefore, PPG has also been a popular contact-based method in recent years. However, these contact methods may cause discomfort and inconvenience for users because users usually need to wear some devices, which requires skin-contact. Therefore, this project proposes a real-time method based on PPG for the contactless estimation of HR and BR.

Key Words: PPG, Optimal Technique, Cardio Vascular System.

Paper ID: ICRICEIT-23-004

Exploratory Data Analysis and Rainfall Prediction using the ARIMA Model

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ABSTRACT

Rainfall prediction is important as heavy rainfall can lead to many disasters. The prediction helps people to take preventive measures and moreover the prediction should be accurate. There are two types of prediction short term rainfall prediction and long-term rainfall. Prediction mostly short-term prediction can give us the accurate result. The main challenge is to build a model for long term rainfall prediction. Heavy precipitation prediction could be a major drawback for earth science department because it is strongly associated with the economy and lifetime of human. It is a cause for natural disasters like flood and drought that square measure encountered by individuals across the world each year. Accuracy of rainfall statement has nice importance for countries like India whose economy is basically dependent on agriculture. The dynamic nature of atmosphere applied mathematics techniques fail to provide sensible accuracy for precipitation statement. The prediction of precipitation using machine learning techniques may use regression. Intention of this project is to offer non-experts' easy access to the techniques, approaches utilized in the sector of precipitation prediction and provide a comparative study among the various machine learning techniques.

Key Words: Rainfall prediction, precipitation prediction, ML, Regression.

Paper ID: ICRICEIT-23-005

Machine Learning Algorithm for Analysis and Prediction of SEER Cancer

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ABSTRACT

Cancer is a widespread and serious disease that affects millions of people worldwide. The Surveillance, Epidemiology, and End Results (SEER) program is a valuable resource that collects cancer data from various regions in the United States. Analyzing and predicting cancer outcomes using machine learning algorithms can provide valuable insights and aid in the development of more effective and personalized cancer treatments. Among females, breast cancer is known as the most diagnosed cancer and the main cause of cancer deaths in more than 100 countries. In 2018, there are about 2.1 million newly diagnosed breast cancer cases around the world, responsible for nearly 1 in 4 cancer cases among females. Fine Needle Aspiration (FNA) is a well-known procedure used to diagnose breast cancer, but it suffers from a lack of satisfactory diagnosis performance. For FNA, radiologist, oncologist, and pathologist are required to render final judgment together in breast cancer diagnosis, which is time-consuming. Also, there is higher possibility to give rise of errors due to exhaustion or inexperience, which panic patients when false-positive result happens or miss optimum treatment time when false-negative result appears. Therefore, developing an efficient diagnosis support system to assist doctors for the diagnosis of cancer has great significance for the medical diagnosis process. This project implements the exploratory data analytics-based supervised learning model for the analysis and prediction of breast cancer with enhanced accuracy and it also helps in finding the most significant feature attributes for improving the prediction accuracy. In addition, this project proposed a k-fold cross-validation for disclosing the robustness of the proposed machine learning model for the analysis and prediction of breast cancer.

Key Words: Surveillance, SEER, FNA, K-fold cross-validation, robustness.

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Paper ID: ICRICEIT-23-006

Machine Learning with Data Frame for Classification of Spam Comments from YouTube

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ABSTRACT

YouTube, the world's largest video sharing site, was founded in 2005 and acquired by Google in 2006. YouTube has grown tremendously as a video content platform, with the recent shift in online content to video. At present, more than 400 hours of video are uploaded, and 4.5 million videos are watched every minute on YouTube. It is easy for users to watch and upload videos without any restrictions. YouTube creators can monetize if they have more than 1,000 subscribers and 4,000 hours of watch time for the last 12 months. Accordingly, spam comments are being created to promote their channels or videos in popular videos. Some creators closed the comment function due to aggression such as political comments, abusive speech, or derogatory comments not related to their videos. YouTube has its own spam filtering system, though there are still spam comments that are not being caught. Research on detecting spam content and users focus on various fields. Many studies focused on spam on websites (e.g., portal sites and blogs). As YouTube gains popularity as a video sharing platform, spammers target it with low quality content or promotions. Since spammers that harm the YouTube community are increasing, detecting them becomes an interesting source to research. Therefore, this work proposes a TF-IDF based machine learning technique to detect spam comments on YouTube, which have recently seen tremendous growth. YouTube is running its own spam blocking system but continues to fail to block them properly. Therefore, we examined related studies on YouTube spam comment screening and conducted classification experiments with supervised learning algorithm i.e., multinomial naive Bayes, and support vector classifier.

Key Words: Aggression, Spam Filtering System, TF-IDF, Tremendous growth, SVM.

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Paper ID: ICRICEIT-23-007

Fuel Net: Artificial Intelligence Tool for Fuel Consumption Prediction in Heavy Vehicles

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ABSTRACT

The transportation industry heavily relies on heavy vehicles to move goods and people efficiently. However, these vehicles consume a substantial amount of fuel, which makes fuel efficiency a critical concern for both cost-effectiveness and environmental sustainability. Given the global worries about fuel consumption and its impact on the environment, there is a pressing need to predict the average fuel consumption of heavy vehicles. Improving fuel efficiency in these vehicles is crucial as they account for a significant portion of fuel consumption. Any enhancements in their fuel efficiency can lead to substantial reductions in greenhouse gas emissions and operational costs. As a result, traditional approaches proved to be inefficient and inadequate, necessitating a more advanced and intelligent solution to optimize fuel usage effectively. With the advent of Artificial Intelligence (AI) and AI-based tools to optimize fuel consumption in heavy vehicles. This project aims to develop one such solution by utilizing the Fuel Net model, which focuses on predicting and enhancing fuel efficiency in heavy vehicles. By analyzing real-time data and historical patterns, Fuel Net can accurately predict fuel consumption, empowering fleet operators and logistics companies to optimize their operations and reduce operating costs. AI-powered tool represents a significant improvement, offering adaptability, precision, and a commitment to environmental sustainability in heavy vehicle operations. Fuel Net emerges as a key technology driving the transport industry towards a greener and more efficient future. By leveraging the power of AI, we can make substantial strides in improving fuel efficiency, reducing emissions, and promoting a transportation system.

Key Words: precision, eco-friendly, AI, Fuel Net.

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Paper ID: ICRICEIT-23-008

Ensemble Model for the Detection of Bot net Attacks from IoT Devices

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ABSTRACT

There are an increasing number of Internet of Things (IoT) devices connected to the network these days, and due to the advancement in technology, the security threads and cyber attacks, such as botnets, are emerging and evolving rapidly with high-risk attacks. IoT-based botnet attack is one of the most popular, spreads faster and create more impact than other attacks. In recent years, several works have been conducted to detect and avoid this kind of attacks by using novel approaches. Hence, a plethora of relevant of relevant models, methods, and etc. have been introduced over the past few years, with quite a reasonable number of studies reported in the research domain. Many studies are trying to protect against these botnet attacks on the IoT environment. However, there are many gaps still existing to develop an effective detection mechanism. These attacks disrupt IoT transition by disrupting networks and services for IoT devices. Many recent studies have proposed ML and DL techniques for detecting and classifying botnet attacks in the IoT environment. This work proposes machine learning methods for classifying binary classes i.e., Benign, or TCP attack. A complete machine learning pipeline is proposed, including exploratory data analysis, which provides detailed insights into the data, followed by pre-processing. During this process, the data passes through several fundamental steps. A random forest, k-nearest neighbour, support vector machines, and a logistic regression model are proposed, trained, tested, and evaluated on the dataset. In addition to model accuracy, F1-score, recall, and precision are also considered.

Key Words: IOT, Botnet, TCP, DL, KNN.

Paper ID: ICRICEIT-23-009

Machine Learning Model for Pneumonia Detection from Chest X-ray Images

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ABSTRACT

Pneumonia is a serious respiratory infection that can lead to severe complications if not diagnosed and treated promptly. From past to present, infectious diseases are one of the most important factors that threaten human health. It is the inflammation caused by the virus and bacteria that microscopically adversely affect the air sacs. Approximately 7% of the world's population is affected by pneumonia every year, and 4 million of the affected patients face fatal risks. So, early diagnosis is important in such diseases. Typical symptoms of pneumonia include chest pain, shortness of breath, cough, etc. are located. Thus, the chest X-ray has become an important diagnostic tool in the diagnosis of pneumonia in children. These experts analyze X-ray images for specific patterns, such as opacities, infiltrates, or consolidation, to determine the presence of pneumonia. However, this process is time-consuming, subjective, and can vary in accuracy depending on the radiologist's experience. Consequently, there is a pressing need for an automated system that can provide consistent and reliable results. Therefore, the proposed model leverages the power of ML, a supervised learning specifically designed for image analysis, to automatically learn and extract relevant features from the chest X-ray images. The dataset consists of many annotated chest X-rays collected from diverse patient populations, including both pneumonia-positive and pneumonia-negative cases. The proposed model holds significant implications for the medical field and patient care. Additionally, the model's ability to function as a valuable decision support tool can lead to improved patient outcomes, reduced hospital stays, and optimized resource allocation within healthcare facilities.

Key Words: ML, Dataset, Optimization, Supervised learning.

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Paper ID: ICRICEIT-23-010

A Block chain-based Secure System for IoT Networks

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ABSTRACT

The Internet of Things (IoT) is all about connecting physical devices, sensors, and machines so they can exchange data and perform tasks automatically, without needing human intervention. It's a technology with diverse applications, like in smart homes, industrial automation, healthcare, transportation, and more. While IoT brings us incredible convenience and efficiency, it has also attracted cyber attackers because of its vulnerabilities. Traditionally, IoT networks have relied on centralized cloud-based servers to store and process data, manage device interactions, and handle communication. The problem with this approach is that it creates a single point of failure, leaving the entire network susceptible to attacks and potential data breaches. Moreover, data transmitted through these centralized servers could be intercepted and tampered with, jeopardizing the privacy and integrity of sensitive information. To address these challenges, this project proposes an innovative solution that harnesses the power of block chain technology to bolster the security and privacy of IoT networks. By utilizing block chain, we can build a decentralized system that is resistant to tampering and promotes transparency. This way, we can safeguard sensitive data and ensure the integrity of IoT devices. The potential of this block chain-based secure system for IoT networks is enormous. It has the capacity to transform the way IoT devices interact and communicate securely, accelerating the adoption of IoT in various fields. Moreover, the cryptographic features of block chain, including consensus algorithms and public-key cryptography, add an extra layer of protection to the IoT system, safeguarding it against unauthorized access, data manipulation, and other cyber threats.

Key Words: IOT, Sensors, Cloud-based Servers, Tampering.

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Paper ID: ICRICEIT-23-011

CNN Model for Parkinson Disease Detection from Image Data

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ABSTRACT

Parkinson's disease (PD) is a progressive neurodegenerative disorder characterised histological by the death of dopaminergic neurons in the substantial nigra pars compact (SNpc) and the presence of Lewy bodies in various parts of the brain. The SNpc is a compact structure in the midbrain that plays a vital role in motor coordination and movement control by producing a chemical substance called dopamine. PD is the second most common neurodegenerative disorder after Alzheimer's disease, affecting 1% of the population over the age of 60 and reaching approximately 5% at 85. The diagnosis of PD requires the presence of bradykinesia (slowness of movements) in addition to muscle rigidity or tremor or postural instability. The manifestations of PD are not limited to motor impairments. However, an accurate early diagnosis can be challenging because the movement symptoms can overlap with other conditions. Sometimes brain imaging may be requested to help support the clinical diagnosis, but there are currently no tests that are wholly sensitive or specific for Parkinson's. The rate of misdiagnosis of PD is approximately 10–25%, and the average time required to achieve 90% accuracy is 2.9 years. Autopsy is still the gold standard for the confirmation of the disease. Therefore, this work designed an advanced convolution neural network model to predict Parkinson disease from both image and voice data. In general, existing ML algorithms such as SVM, and Random Forest will not filter data multiple times so its prediction accuracy is less hence CNN is used in this work, which filter data multiple times using neuron values so its prediction accuracy can be better. This work uses WAVE and SINE images of normal and Parkinson disease patients for imaging data and UCI Parkinson recorded voice is used for voice samples.

Key Words: PD, SNpc, Rigidity, ML, SVM, CNN, UCI.

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Paper ID: ICRICEIT-23-012

Landsat-8 Image Classification using Support Vector Machine Classifier

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ABSTRACT

LANDSAT-8 is a satellite mission operated by NASA and the US Geological Survey (USGS) to acquire high-resolution multispectral images of the Earth's surface. These images have widespread applications, including land cover classification, environmental monitoring, agriculture, urban planning, and disaster assessment. However, processing and classifying such vast amounts of data pose significant challenges and accurate land cover classification is crucial for various applications, such as resource management, land-use planning, and environmental monitoring. The traditional approach to image classification involved manual interpretation, where experts analyzed satellite images and assigned land cover classes based on visual assessment. While this method provided reasonable results, it was labour-intensive, time-consuming, and lacked consistency. Moreover, manual interpretation was not feasible for handling large-scale datasets such as LANDSAT-8 images, which cover vast areas. Therefore, there is a growing demand for automated and efficient classification techniques to handle the vast amount of LANDSAT-8 imagery data. Hence, this work aims its potential to revolutionize land cover classification using LANDSAT-8 satellite images. By applying the support vector machine (SVM) classifier, this proposed supervised learning aims to achieve high accuracy and efficiency in categorizing land cover classes. The satellite data used in this work consists of multispectral bands acquired by Landsat-8 Operation Land Imager (OLI) sensor because it is suitable for mapping of land cover classes. Further, the proposed system can significantly benefit applications in environmental monitoring, land-use planning, and disaster response, leading to informed decision-making and resource management.

Key Words: LANDSAT-8, NASA, OLI, SVM.

Paper ID: ICRICEIT-23-013

XG Boost Model-based Alpha Signal Prediction using Micro blogging Data from social media

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ABSTRACT

Alpha signals, also referred to as excess returns, play a crucial role in assessing the performance of a financial asset compared to the overall market benchmark. The ability to predict alpha signals holds immense value accurately and promptly for investors and financial analysts, as it can greatly influence portfolio optimization and risk management decisions. However, traditional methods of alpha signal prediction, which heavily rely on historical financial data, have their limitations in capturing real-time market sentiments and changes. To overcome these limitations, researchers have started exploring alternative data sources, particularly social media data, to gain deeper insights into market sentiments and enhance alpha signal prediction. Micro blogging platforms such as Twitter and Stock Twits serve as rich sources of real-time information, reflecting opinions and reactions to financial events as they happen. Leveraging such data for alpha signal prediction has the potential to complement and strengthen traditional financial analysis methods, leading to more precise and robust predictions. In light of this, the focus of this study is to utilize micro blogging data from social media platforms to predict alpha signals in financial markets. The chosen approach employs the XG Boost model, a powerful machine learning algorithm renowned for its capability to handle complex and unstructured data with high dimensions. The model is trained using historical data and then tested on out-of-sample data to evaluate its predictive performance and accuracy. By harnessing the real-time and sentiment-rich information from social media, this proposed work aims to contribute to the advancement of alpha signal prediction methodologies and enhance decision-making processes in the financial domain.

Key Words: Alpha signals, Optimization, Integration, XG Boost, ML.

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Paper ID: ICRICEIT-23-014

Integrated Supervised and Unsupervised Learning for Mall Customer Segmentation

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ABSTRACT

In today's modern era, innovation has become the driving force behind everything and everyone. In this highly competitive landscape, businesses and entrepreneurs strive to outdo one another. This surge in competition has led to a sense of insecurity and tension among businesses, as they seek to attract new customers while retaining their existing ones. To achieve this, providing exceptional customer service is essential, regardless of the size of the business. Understanding the needs of customers is crucial in offering top-notch customer support and promoting the most suitable products. With the abundance of online products available, customers often find themselves puzzled about what to purchase, while businesses struggle to identify the right target audience for their specific products. This is where "Customer Segmentation" comes into play. Customer segmentation is the process of grouping customers with similar interests and shopping behaviour into specific segments, while separating those with different interests and shopping patterns into other segments. By doing so, businesses can gain valuable insights into their customer base and tailor their strategies accordingly. Customer segmentation and pattern extraction are pivotal aspects of a business decision support system. Each segment represents a group of customers who likely share common interests and shopping habits. By understanding these segments, businesses can cater to their customers more effectively and offer them products and services that truly meet their needs. Therefore, this project implements optimized unsupervised learning for customer segmentation.

Key Words: Segmentation, Supervised learning, Pattern Extraction.

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Paper ID: ICRICEIT-23-015

Logistic Regression and Random Forest Classifier for Attack Detection in IoT Sensor Data

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ABSTRACT

The Internet of Things (IoT) connects a vast array of devices, ranging from home appliances to industrial sensors, creating an interconnected network of smart devices. IoT applications generate large volumes of sensor data, which are highly susceptible to security breaches and attacks. Cyber-criminals may exploit vulnerabilities in the IoT ecosystem to manipulate sensor data, leading to disastrous consequences such as unauthorized access, data falsification, and service disruption. In addition, IoT-based attacks can lead to severe consequences such as data manipulation, privacy breaches, and economic losses. One of the major challenges is detecting and preventing attacks on the valuable sensor data collected by IoT devices. To address this concern, there is a need for specialized techniques tailored for IoT sensor data to protect these systems and their users. Further, the proposed work aims to contribute to the field of cyber security and foster more resilient and secure IoT implementations. This work introduces a comprehensive and practical solution to enhance IoT security. Here, Logistic Regression, and Random Forest classifiers are employed for attack detection from the IoT sensor data, where the first one is a straightforward yet powerful technique for binary classification, enabling the detection of simple intrusion attempts. Meanwhile, the Random Forest Classifier excels at handling complex patterns and interactions in data, making it effective in identifying sophisticated attacks with multiple variables and dependencies. By leveraging the strengths of these algorithms, the proposed approach provides a robust and advanced system for detecting a wide range of attacks in IoT sensor data.

Key Words: IOT, Sensor data, LR, RF, Robust.

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Ensemble Model for Exploratory Data Analysis and Prediction of Cardiomyopathy

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ABSTRACT

Cardiomyopathy, a serious heart muscle disease, can lead to heart failure and other life-threatening complications. It encompasses a group of heart disorders that cause structural changes and hinder heart function. It can arise from genetic factors, infections, or environmental influences. Detecting cardiomyopathy in its early stages is crucial to initiate timely treatments and enhance patient outcomes. Traditional diagnostic methods may not be sensitive enough to detect subtle signs of the disease, leading to delayed intervention. Therefore, this work proposes an innovative approach called the Ensemble Model for Exploratory Data Analysis and Prediction of Cardiomyopathy (EMEDAPC).The proposed EMEDAPC presents a holistic approach to analyze diverse datasets related to cardiomyopathy. This model can effectively identify key disease-related features, leading to improved predictive performance, and it significantly reduces the risk of false positives and false negatives, providing more accurate results for cardiomyopathy diagnosis and risk assessment. The outcomes of this research have the potential to revolutionize cardiology by aiding healthcare professionals in making informed decisions, enabling early interventions, and ultimately improving the lives of patients with cardiomyopathy.

Key Words: EMEDAPC, Cardiomyopathy, Predictive Performance.

Paper ID: ICRICEIT-23-017

Unveiling the Power of Extreme Learning Machine: Combating Spam and Identifying Fake Users on Twitter

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ABSTRACT

Social networking sites engage millions of users around the world. The users' interactions with these social sites, such as Twitter and Face book have a tremendous impact and occasionally undesirable repercussions for daily life. The prominent social networking sites have turned into a target platform for the spammers to disperse a huge amount of irrelevant and deleterious information. Twitter, for example, has become one of the most extravagantly used platforms of all times and therefore allows an unreasonable amount of spam. Fake users send undesired tweets to users to promote services or websites that not only affect legitimate users but also disrupt resource consumption. Moreover, the possibility of expanding invalid information to users through fake identities has increased that result in the unrolling of harmful content. Recently, the detection of spammers and identification of fake users on Twitter has become a common area of research in contemporary online social Networks (OSNs). This work proposes the detection of spammers and fake user identification on Twitter data using extreme learning machine (ELM) and compared the obtained results with various machine learning algorithms like random forest, Naevi Bayes and support vector machine. Moreover, a taxonomy of the Twitter spam detection approaches is presented that classifies the techniques based on their ability to detect: (i) fake content, (ii) spam based on URL, (iii) spam in trending topics, and (iv) fake users. The presented techniques are also compared based on various features, such as user features, content features, graph features, structure features, and time features.

Key Words: OSNs, ELM, URL, SVM.

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Paper ID: ICRICEIT-23-018

Hepatitis Net: Exploratory Data Analysis and Prediction of Hepatitis A and Hepatitis B using Machine Learning

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ABSTRACT

Hepatitis is a serious viral infection that affects the liver, causing inflammation and potentially leading to liver cell death and impaired liver function. There are five main types of hepatitis viruses: A, B, C, D, and E. Among them, hepatitis B virus (HBV) and hepatitis C virus (HCV) can lead to chronic hepatitis, liver cirrhosis, and hepatic cellular carcinoma. Currently, an estimated 257 million people worldwide are infected with HBV, and 71 million are infected with HCV. The prevalence of HBV varies based on geographic regions, with a global estimate of 3.6%. The global prevalence of HCV in adults is approximately 2.5%, and its incidence ranges from 0.5% to 2.8% in different studies. Studies have shown that African and Asian countries have the highest prevalence of HBV and HCV. Machine learning, a branch of Artificial Intelligence, has emerged as a powerful tool in health informatics to predict and analyze chronic diseases. However, challenges arise due to the presence of a large number of samples with similar aspect values and distributions in the dataset, leading to noise and inefficiency. To address these challenges, this work proposes the use of Support Vector Machine (SVM) algorithm to predict and eliminate same aspect results and noise in the medical data of Hepatitis patients. By doing so, it aims to increase the accuracy level of predicting the patient's condition. Our ultimate goal is to anticipate the progression of Hepatitis in patients based on their medical records, and SVM proves to be an effective method for achieving this. By utilizing SVM to analyze and measure the results, this approach can achieve better accuracy and efficiency in predicting the Hepatitis in patients and provide timely interventions to improve patient outcomes.

Key Words: SVM, Prediction, Noise, Machine Learning.

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Paper ID: ICRICEIT-23-019

Supervised Learning Models for Student Performance Analysis with EDA

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ABSTRACT

In today's education landscape, data plays a crucial role, with educational institutions gathering extensive information about students, including their grades, attendance, test scores, and demographic details. This wealth of data offers a unique opportunity to uncover valuable patterns and trends related to academic achievement. By analyzing this data, educators can optimize teaching methods and create a more enriching learning experience for students. By harnessing machine learning techniques, educators can gain deeper insights into the factors that influence a student's success or failure. In light of these motivations, our work aims to utilize Supervised Learning Models in tandem with Exploratory Data Analysis (EDA) to analyze student performance data comprehensively. By doing so, we seek to gain a deeper understanding of the various factors that contribute to academic success. This knowledge will aid in the development of an effective predictive framework that allows educators to identify struggling students at an early stage and provide personalized interventions to improve their learning outcomes. The significance of this research lies in its potential to transform educational practices. By building predictive models through Supervised Learning, educators can proactively identify students who might be at risk of falling behind. Armed with this information, they can offer timely support, preventing academic setbacks and fostering a nurturing learning environment. Moreover, the insights obtained from the Exploratory Data Analysis (EDA) can shed light on previously overlooked factors that significantly impact student performance. Armed with this knowledge, educators can implement evidence-based policies and tailored strategies to improve overall learning outcomes for all students.

Key Words: EDA, Decision Making, Predictive, Frame work.

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Paper ID: ICRICEIT-23-020

Supervised and Semi-supervised Text Mining Models for Hotel Reviews Analysis

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ABSTRACT

Online reviews have great impact on today's business and commerce. Decision making for purchase of online products mostly depends on reviews given by the users. Hence, opportunistic individuals or groups try to manipulate product reviews for their own interests. In recent years, online reviews have become the most important resource of customers' opinions. Unfortunately, driven by the desire for profit or publicity, fraudsters have produced deceptive (spam) reviews. The fraudsters' activities mislead potential customers and organizations reshaping their businesses and prevent opinion-mining techniques from reaching accurate conclusions. Fake reviews can be created in two main ways. First, in a (a) human-generated way by paying human content creators to write authentic-appearing but not real reviews of products — in this case, the review author never saw said products but still writes about them. Second, in a (b) computer-generated way by using text-generation algorithms to automate the fake review creation. Traditionally, human-generated fake reviews have been traded like commodities in a "market of fakes" – one can simply order reviews online in each quantity, and human writers would carry out the work. However, the technological progress in text generation – natural language processing (NLP) and machine learning (ML) to be more specific – has incentivized the automation of fake reviews, as with generative language models, fake reviews could be generated at scale and a fraction of the cost compared to human-generated fake reviews. This work introduces some semi-supervised and supervised text mining models to detect fake online reviews as well as compares the efficiency of both techniques on dataset containing hotel reviews.

Key Words: Text Mining, Mining-Techniques, NLP, Automation.

Paper ID: ICRICEIT-23-021

Detecting and Classifying Malicious Uniform Resource Locations Using Advanced Machine Learning

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ABSTRACT

In today's digital age, the World Wide Web has become the primary platform for sharing knowledge and conducting economic activities. However, with this undeniable prominence comes the ever-growing concern of cyber security. Companies and governments are constantly researching ways to enhance their security measures. Symantec's 2023 Internet Security Report is a comprehensive resource that sheds light on various global threats. These threats range from corporate data breaches and attacks on browsers and websites to spear phishing attempts ran some ware, and other forms of fraudulent cyber activities. Among the most common cyber security vulnerabilities is the existence of malicious websites or Unified Resource Locations (URLs). Every year, billions of rupees are lost due to hosting gratuitous material like spam, malware, unsuitable adverts, and spoofing. These sites often target unsuspecting visitors, luring them into falling for scams through emails, ads, web searches, or connections from other websites. It's crucial to have a reliable system in place that can accurately identify and categorize dangerous URLs as incidents of phishing, spamming, and malware continue to rise. However, implementing such a system is no easy task. The sheer volume of data, ever-changing patterns and technologies, complex relationships between characteristics, lack of sufficient training data, non-linearity, and the presence of outliers make classification challenging. In the proposed work, malicious URLs are detected and classified using advanced machine learning i.e., ensemble modelling. The dataset has been categorized into four types i.e., Phishing, Benign, Defacement and Malware. Here, logistic regression, and ensemble modelling are implemented to detect and classify malicious URLs.

Key Words: Machine Learning, URL, Phishing, Spamming.

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Paper ID: ICRICEIT-23-022

Rice Blast Disease Prediction using Integrated SMOTE with Multilayer Perceptron

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ABSTRACT

Agriculture is the primary source of income for the major population of India. Agriculture generates17% of the total GDP of India and India is the second-largest producer of rice and wheat. Rice (Oryza sativa) is a major food crop for many parts of India. India has the largest area under rice cultivation; hence rice is the important crop of the country. Rice production has been challenged by recent changes in crop production technologies, that also has impact on disease occurrence. Thus, crop management includes extensive use of fertilization, repeated flooding increases the disease problem, increased monoculture of rice helps in support of pathogens from one crop to another crop. The Rice crop in India has affected by many pathogens. Among 36 rice diseases, rice blast is the disease caused by Magna porthe Oryae, is the major destructive disease of paddy crop. This disease having significant threat to the production of paddy crops all over the country. Rice blast continues to be a cryptic problem in several rice-growing regions (tropical and temporal) where the pathogen spreads exponentially and is difficult to manage by the farmers and thus reduces yield of paddy crop in the field. Climate play's major role in the disease appearance, multiplication, and spread of the fungus. Thus, rice blast disease will occur and develop when certain weather conditions continue for the given period. Forecasting models that make predictions of possible blast disease occurrence may give important information to the producers of rice to manage the disease. Therefore, this project implements the rice blast disease prediction using data balancing technique based multilayer perceptron.

Key Words: SMOTE, Perceptron, pathogens, Data Balancing Technique.

Paper ID: ICRICEIT-23-023

ARIMA Model for Prediction of Vehicle Sales (Tractors) with EDA

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ABSTRACT

The sales forecasting of vehicles plays an important role in the worldwide automobile market and its gaining attractive due to the advancement in data science approaches. However, the number of efforts undertaken in this field of research is quite small to date. Methods based on statistical learning theory are powerful instruments to get insight into internal relationships within huge empirical datasets. In this work, the accuracy of the prediction has the same importance as the explicability of the model. Hence, only classical data mining methods are applied here. This work presents enhanced sales forecast methodology and model for the automobile market which delivers highly accurate predictions while maintaining the ability to explain the underlying model at the same time. The representation of the economic training data is discussed, as well as its effects on the newly registered automobiles to be predicted. The methodology mainly consists of time series analysis and classical data mining algorithms, whereas the data is composed of absolute and/or relative market-specific exogenous parameters on a yearly, quarterly, or monthly base. It can be concluded that the monthly forecasts were especially improved by this enhanced methodology using absolute, normalized exogenous parameters. The main goal of this project is to consider main approaches and case studies of using machine learning for sales forecasting. The effect of machine-learning generalization has been considered. This effect can be used to make sales predictions when there is a small amount of historical data for specific sales time series in the case when a new product or store is launched. A stacking approach for building regression ensemble of single models has been studied. The results show that using stacking techniques, we can improve the performance of predictive models for sales time series forecasting.

Key Words: ML, Generalization, Classical Data Mining, Stacking Techniques.

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Paper ID: ICRICEIT-23-024

Detection of Fraudulent Medicare Providers using Decision Tree and Logistic Regression Models

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ABSTRACT

With the overall increase in the elderly population come additional, necessary medical needs and costs. Medicare is a U.S. healthcare program that provides insurance, primarily to individuals 65 years or older, to offload some of the financial burden associated with medical care. Even so, healthcare costs are high and continue to increase. Fraud is a major contributor to these inflating healthcare expenses. The most common method for undertaking the latter involves manually auditing claims data, which is a time-consuming and expensive process. Machine learning models can greatly cut auditing costs by automatically screening incoming claims and **flagging up** those that are deemed to be suspicious – i.e., potentially incorrect – for subsequent manual auditing. This work provides a comprehensive study leveraging machine learning methods to detect fraudulent Medicare providers. This work uses publicly available Medicare data and provider exclusions for fraud labels to build and assess three different learners. In order to lessen the impact of class imbalance, given so few actual fraud labels, this framework employs Logistic Regression creating two class distributions. Results show that the other algorithms have poor performance compared with Logistic Regression. Learners have the best fraud detection performance, particularly for the 80:20 class distributions with average AUC scores, respectively, and low false negative rates. This work successfully demonstrates the efficacy of employing machine learning models to detect Medicare fraud.

Key Words: AUC scores, LR, ML, Flagging up, Logistic Regression.

Paper ID: ICRICEIT-23-025

Artificial Intelligence for Prediction of SQL Injection Attack

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ABSTRACT

SQL injection attacks pose a serious threat to web applications, as they exploit vulnerabilities in the database layer by injecting malicious SQL code into user input fields. These attacks can have severe consequences, including unauthorized access, data breaches, and even the complete compromise of the application and underlying database. Although traditional methods like input validation and parameterized queries exist to counter SQL injection, they have their limitations. These methods often rely on manual coding practices and may not cover all possible attack vectors. As attackers continually evolve their techniques, there is a pressing need for advanced and automated solutions that can proactively identify and mitigate SQL injection attacks. This is where artificial intelligence (AI) proves its significance in predicting and combating SQL injection attacks. AI has the capacity to analyze vast amounts of data, detect patterns, and learn from previous attacks, making it an invaluable tool in this context. AI brings significant benefits to the prediction of SQL injection attacks. Its ability to detect anomalies, learn from new attack patterns, recognize complex patterns, reduce false positives, provide real-time protection, and scale to handle large applications makes it an indispensable tool. By leveraging AI, organizations can bolster their defences against SQL injection attacks, mitigating risks and ensuring the security of their web applications and databases.

Key Words: SQL injection attacks, Mitigate, AI, Real Time Protection.

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Paper ID: ICRICEIT-23-026

Emotion Detection Model-based Music Recommendation System

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ABSTRACT

Over the recent years much advancement is made in terms of artificial intelligence, machine learning, human-machine interaction etc. Voice interaction with the machine or giving command to it to perform a specific task is increasingly popular. Many consumer electronics are integrated with SIRI, Alexa, Cortana, Google assist etc. But machines have limitation that they cannot interact with a person like a human conversational partner. It cannot recognize Human Emotion and react to them. Emotion Recognition from speech is a cutting-edge research topic in the Human machines Interaction field. There is a demand to design a more rugged man-machine communication system, as machines are indispensable to our lives. Many researchers are working currently on speech emotion recognition (SER) to improve the man machines interaction. To achieve this goal, a computer should be able to recognize emotional states and react to them in the same way as we humans do. The effectiveness of the speech emotion recognition (SER) system depends on quality of extracted features and the type of classifiers used. In this work we tried to identify four basic emotions: anger, sadness, neutral, happiness from speech. Here this work used audio file of short speech taken from movies as training and testing dataset. This work use CNN to identify different emotions using MFCC (Mel Frequency Cepstral Coefficient) as features extraction technique from speech.

Key Words: SIRI, AI, SER, MFCC, CNN.

Paper ID: ICRICEIT-23-027

Machine Learning Model for Autism Prediction in Toddlers

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ABSTRACT

Autism Spectrum Disorder (ASD), commonly referred to as "autism," is a psychiatric condition that affects a person's linguistic, cognitive, and social abilities. It's a prevalent disorder, with approximately 1 in every 54 births being diagnosed with ASD, and about 1% of the global population living with it. Unfortunately, despite its prevalence, the cause and cure for autism remain unknown, posing significant challenges to parents who suspect their child might have ASD. Early diagnosis of autism is crucial for a child's development, but it can be incredibly tough since symptoms manifest as the child grows. Typically, diagnostic tests conducted on children between the ages of 2 to 3 years are less reliable than those performed on children aged 4 to 5 years. This creates a worrying situation because early diagnosis is vital for autistic individuals to reach their developmental milestones successfully. Autism is often characterized by difficulties in social interaction and communication, making it challenging to diagnose accurately even with advanced tools like the ADOS and ADI. This work addresses the concerns surrounding autism diagnosis by focusing on improving the diagnostic pipeline. It involves training and testing machine learning models i.e., Random Forest with Standard scalar using an autism spectrum disorder dataset to identify the most significant indicators of autism in toddlers. The goal is to develop a quantitative approach to aid in early screening and subsequent treatment, as timely intervention can help mitigate long-term symptoms associated with autism. By leveraging machine learning, this work aims to provide valuable insights into diagnosing autism effectively and facilitating better support for individuals with ASD and their families.

Key Words: ASD, Autism, ADOS, ADI, ML.

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Paper ID: ICRICEIT-23-028

Machine Learning Framework for Distributed Denial-of-Service Attack Detection and Classification

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ABSTRACT

Distributed Denial-of-Service (DDoS) attacks have been a prevalent cyber threat since the early 2000s, wreaking havoc on internet-connected systems. Initially, detection and mitigation strategies were largely rule-based, which proved inadequate against sophisticated and ever-evolving DDoS attack techniques. This limitation led to the exploration of Machine Learning (ML) algorithms to automatically identify and classify DDoS attacks based on patterns and anomalies in network traffic. The rise of DDoS attacks has become a pressing concern for organizations and network administrators. These attacks involve multiple compromised systems, overwhelming a target system with an enormous amount of traffic, leading to service unavailability. As DDoS attacks grew in frequency, scale, and complexity, the conventional security measures proved insufficient. Network administrators struggled to distinguish legitimate traffic from malicious attack traffic in real-time. Traditional signature-based detection mechanisms were ineffective against zero-day attacks and botnet-driven DDoS campaigns. Therefore, a robust, automated, and adaptive DDoS detection and classification system based on ML became imperative. To combat this menace, ML Framework for DDoS Attack Detection and Classification is proposed, which is built on a comprehensive dataset containing normal and attack traffic, allowing ML models to learn and differentiate between the two.

Key Words: DDoS, Botnet-Driven, ML, Imperative.

Paper ID: ICRICEIT-23-029

Artificial Intelligence Model for Air Quality Prediction and Analysis

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ABSTRACT

Over the years, predicting and analyzing air quality has undergone significant advancements. In the past, we heavily relied on traditional methods like statistical models and simplified equations. However, these approaches struggled to capture the complex and dynamic nature of air pollution. As technology evolved, scientists and researchers turned to AI, machine learning, and big data analytics to improve air quality predictions. On the other hand, air pollution is a critical global issue that affects not only our environment but also our health and well-being. It is also linked to respiratory and cardiovascular diseases, leading to an increase in illnesses and deaths. Accurate air quality predictions empower governments, local authorities, and individuals to take timely actions to combat pollution, safeguard public health, and optimize urban planning. To tackle this pressing problem, we need accurate air quality prediction and analysis. Our motivation behind developing this AI model stems from the limitations of traditional air quality prediction methods. We've seen that these methods often lack accuracy and struggle to account for the intricate factors influencing air pollution. The potential of AI, with its ability to process vast amounts of real-time data and identify complex patterns, offers a promising solution to enhance the accuracy and reliability of air quality predictions. Therefore, this work introduces an innovative Artificial Intelligence (AI) model designed to predict and analyze air quality with exceptional precision and efficiency. By incorporating cutting-edge AI algorithms and data analytics techniques, this model aims to meet the growing demand for reliable real-time air quality information.

Key Words: AI, Prediction, ML, Complex patterns.

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Paper ID: ICRICEIT-23-030

People Counting System based on Head Detection using Faster RCNN

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ABSTRACT

The People Counting System is an advanced computer vision application with the primary goal of accurately counting people in crowded or monitored areas. It has been designed to address the need for real-time and reliable head detection to count individuals in various environments like shopping malls, transportation hubs, stadiums, and public gatherings. Their accuracy suffers due to the lack of fine-grained object recognition and tracking, making them time-consuming, error-prone, and costly. To overcome these limitations, automating the counting process with computer vision techniques proves to be a significant improvement in terms of accuracy and efficiency. In response to this need, the proposed system offers an effective and reliable solution for automated people counting in crowded environments. Leveraging computer vision technology, this system utilizes the cutting-edge Faster R-CNN, an object detection model, to detect and count individual heads in real-time. Focusing on head detection ensures precise counting while minimizing common errors related to double counting, often encountered in simpler counting methods. This system represents a substantial advancement over traditional approaches by accurately identifying and localizing heads even in densely crowded scenes where heads may be partially obscured or overlapping with other objects. Its high accuracy ensures minimal counting errors, which proves crucial in applications where precise counting is necessary for decision-making processes, such as occupancy management, security, or retail analytics. One of the key advantages of the system is its real-time capability enabled by Faster R-CNN, allowing continuous and instantaneous counting. This feature ensures an immediate response to changing crowd conditions, making it a valuable tool for effective crowd management and decision-making in various scenarios.

Key Words: Accurate Count, Cutting-edge, Faster R-CNN, Decision-making.

Paper ID: ICRICEIT-23-031

Detection and Classification of Brain Tumours Using CNN-Based Model

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ABSTRACT

Brain tumour detection and classification are crucial tasks in medical imaging and play a vital role in the treatment planning process. This work presents a method for brain tumour treatment using Convolution Neural Networks (CNNs). CNNs are deep learning models that have shown remarkable success in various computer vision tasks, including medical image analysis. The proposed approach leverages the power of CNNs to automatically learn discriminative features from Magnetic Resonance (MR) brain images. The dataset used in this work consists of pre-processed MR images of patients with different types of brain tumours. These images are labelled with ground truth information indicating the presence and type of tumour. The CNN model is trained using a large set of labelled MR images, allowing it to learn complex patterns and features that distinguish healthy brain tissue from tumour regions. The training process involves iterative optimization of the network's parameters, guided by a loss function that measures the dissimilarity between predicted and actual tumour labels. Once trained, the CNN model can be used for tumour detection and classification on new, unseen MR brain images. Given an input image, the model analyzes its features and outputs a prediction indicating the presence of a tumour and its type if detected. This information can assist medical professionals in diagnosing and planning appropriate treatment strategies. To evaluate the effectiveness of the proposed approach, extensive experiments are conducted on a diverse set of MR brain images. The experimental results demonstrate the potential of CNNs in achieving high accuracy and robustness in brain tumour detection and classification tasks.

Key Words: CNN, Deep learning, MR, Data set, Complex patterns.

Paper ID: ICRICEIT-23-032

NLP-based Supervised Learning Algorithm for Cyber Insurance Policy Pattern Prediction

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ABSTRACT

In today's world, the reality of modern cyber attacks and their severe impacts has become apparent, highlighting the fact that relying solely on risk mitigation measures is not enough for organizational cyber security management. Some notable cyber security attacks with critical severity include WannaCry and NotPetya in 2017. Additionally, there was a ransom ware attack that affected major governmental organizations in the USA, such as the Departments of Defence, Homeland Security, State, Treasury, Energy, Commerce, and others. Today, the digital landscape is filled with advanced cyber threats of high severity, including crypto jacking, malware, supply-chain attacks, ransom ware, business email compromise, and more. In this context, cyber insurance has gained increasing importance as organizations face the ever-growing menace of cyber attacks and data breaches. By predicting these patterns, insurance companies can better assess risk, set appropriate premiums, and design effective coverage strategies. To achieve this, a novel methodology is proposed in this work, combining two powerful techniques: TF-IDF (Term Frequency-Inverse Document Frequency) feature extraction and a multinomial naive Bayes classifier. The TF-IDF algorithm is utilized to represent policy documents as numerical feature vectors, which capture the significance of terms within the documents. Subsequently, the multinomial naive Bayes classifier is employed to classify the policy patterns based on the extracted features. By leveraging advanced techniques and algorithms, organizations can better prepare themselves for potential cyber threats, making informed decisions to safeguard their interests and assets.

Key Words: Risk mitigation, TF-IDF, Bayes classifier, prediction.

Paper ID: ICRICEIT-23-033

Deep Learning Model for Cyber Attack Detection and Classification in IoT Environment

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ABSTRACT

In today's interconnected world, the widespread adoption of Internet of Things (IoT) devices has brought forth a host of conveniences and opportunities. However, this technological revolution has also opened the door to a new breed of cyber threats, with attackers exploiting vulnerabilities in IoT devices to compromise user privacy, disrupt critical services, and wreak havoc. Traditional security measures have proven inadequate to combat the evolving complexity of these cyber-attacks, necessitating a more advanced and adaptive approach. This urgency has given rise to the development of a Deep Learning Model for Cyber Attack Detection and Classification in IoT Environments (DL-IoT-CD). In addition, the need for a robust cyber security solution in IoT environments has become paramount due to the increasing reliance on these devices for critical applications. Existing intrusion detection systems and conventional security measures often lack the scalability and agility needed to keep pace with rapidly evolving attack techniques. As a result, there is a pressing demand for an intelligent, automated, and proactive cyber defence mechanism capable of real-time detection and classification of emerging cyber threats. The DL-IoT-CD model aims to fulfil this need by harnessing the power of deep learning algorithms to analyze vast amounts of data generated by IoT devices. By doing so, it can effectively distinguish between legitimate and malicious activities, thereby bolstering the security posture of IoT ecosystems.

Key Words: IoT, DL-IoT-CD, Deep learning, Intrusion Detection.

Paper ID: ICRICEIT-23-034

Data Mining and ML models for Airbnb Data Analysis with Cosine Similarity

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ABSTRACT

In 2019, PricewaterhouseCoopers conducted a study highlighting five sharing sectors: travel, car sharing, finance, recruiting, and streaming music and videos. According to their findings, these sectors have the potential to significantly boost global revenue from $158 billion (estimated in 2019) to approximately $735 billion by the year 2033. Among these sectors, the travel industry has been significantly impacted by the emergence of new peer-to-peer (P2P) models like Airbnb. As of now, Airbnb stands as the largest P2P hosting platform, boasting around 4 million ads in 2017 and having a valuation of $25 billion in 2015.One of the major reasons for the popularity of Airbnb is its ability to make rental sharing more cost-effective and convenient for both hosts and customers. However, as the customer experience plays a vital role in shaping their opinions and recommendations, online user reviews have a significant impact on the consumer interest in P2P platforms like Airbnb. Since trying out properties before making a reservation is not feasible, these reviews become crucial in influencing the customers' choices. With Airbnb emerging as the leading platform for short-term rental accommodations, it has become essential to understand the factors that contribute to customer satisfaction in the P2P hosting landscape. Various studies have been conducted in this direction, but there are still certain gaps that need to be addressed, especially concerning how different categories of customers perceive and approach their rental experiences. This understanding will be vital for the continued success and growth of P2P hosting platforms like Airbnb in the future. Therefore, this work proposes a data mining and machine learning models for the analysis of Airbnb data with cosine similarity.

Key Words: Airbnb, P2P platforms, ML, Cosine similarity.

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Paper ID: ICRICEIT-23-035

Machine learning model for Message Queuing Telemetry Transport Data Analytics

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ABSTRACT

Message Queuing Telemetry Transport (MQTT) has become a dominant protocol for the Internet of Things (IoT) because of its efficient use of bandwidth and low power consumption. It enables seamless communication between devices with limited resources, making it a perfect fit for various IoT applications like smart homes, industrial automation, and healthcare monitoring. This lightweight messaging protocol is widely adopted in the IoT ecosystem to facilitate smooth communication between devices and applications. As the number of IoT devices continues to grow rapidly, so does the volume of data they generate. This surge in data highlights the need for robust analytics solutions capable of extracting valuable insights from the MQTT data stream. Traditional analytics methods struggle to handle real-time data processing and uncover actionable insights, which underscores the necessity for specialized machine learning solutions. The proposed machine learning model is of great significance as it has the potential to unleash the power of MQTT data and transform it into actionable insights. By harnessing advanced algorithms and adaptive learning techniques, this model can identify patterns, anomalies, and trends in real-time MQTT data streams. This empowers businesses and organizations to make informed decisions and optimize their IoT operations effectively. With the ability to handle diverse data sources, the model becomes versatile and applicable across various domains, such as healthcare, smart cities, agriculture, and manufacturing.

Key Words: MQTT, IoT-CD, Patterns, Anomalies, Data streams.

Paper ID: ICRICEIT-23-036

Malware Detection and Classification using Extreme Learning Machine Classifier

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ABSTRACT

Security concerns pose a major challenge in realising the benefits of this industrial revolution as cyber criminal's attack individual PC's and networks for stealing confidential data for financial gains and causing denial of service to systems. A malware is a computer program with the purpose of causing harm to the operating system (OS). Detection and mitigation of malware is an evolving problem in the cyber security field. Now-a-days to detect cyber-attack are using static and dynamic analysis of request data. Dynamic analysis will use dynamic execution of program to detect malware/attack, but dynamic analysis is time consuming. To overcome from this problem and to increase detection accuracy with old and new malware attacks, we are using machine learning algorithms and evaluating prediction performance of various machine learning algorithms such as SVM, RF, Decision Tree, Naïve Bayes, LR, KNN and Deep Learning Algorithms such as CNN and LSTM. Among those, various models Deep learning CNN resulted in superior performance compared to other models. To evaluate machine learning algorithms performance this work using binary malware dataset called 'MALIMG'. This dataset contains 25 families of malware and application will convert this binary dataset into gray images to generate train and test models for machine learning algorithms. This algorithm converting binary data to images and then generating model, so they are called as MalConv CNN and MalConv LSTM and another algorithm refers as EMBER. Application convert dataset into binary images and then used 80% dataset for training model and 20% dataset for testing. Whenever we upload new test malware binary data then application will apply new test data on train model to predict malware class.

Key Words: Detection and mitigation, SVM, RF, LR, CNN, KNN, LSTM.

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Paper ID: ICRICEIT-23-037

A Block chain based Secure and Efficient Validation System for Digital Certificates

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ABSTRACT

Certificate forgery has been a persistent issue across various industries, causing concerns in education, professional certifications, and legal documentation. In the past, verifying certificates was a manual and time-consuming process, involving physical examination of paper-based documents and cross-referencing with centralized databases or authorities. Moreover, traditional paper certificates to tampering and counterfeiting raised doubts about their authenticity and reliability. Thankfully, recent technological advancements have opened up a promising solution to combat certificate forgery by utilizing block chain technology for certificate verification. Therefore, this project proposes an innovative approach to tackle this problem head-on. This work aims to create a robust and tamper-resistant certificate verification platform. Block chain technology offers a decentralized and immutable way of storing and managing data, making it an ideal candidate to revolutionize certificate verification. The entire process becomes more efficient and secure. Each certificate issuance is recorded in a tamper-proof manner, complete with a timestamp, which virtually eliminates the possibility of altering or deleting information. This means that certificates can be verified without the involvement of a single controlling entity, making the system more reliable and transparent. In addition, the proposed system addresses the challenges associated with certificate forgery and offers a secure, efficient, and trustworthy solution. By leveraging block chain technology, this proposed system can revolutionize current practices and ensure that certificates hold their true value and authenticity, thus maintaining the integrity of various industries plagued by this long-standing problem.

Key Words: fraudulent activities, tamper-resistant, reliability, Block chain technology.

Paper ID: ICRICEIT-23-038

Computer Vision Application: Vehicle Counting and Classification System from Real-time Videos

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ABSTRACT

In today's world, accurately counting and classifying vehicles in real-time has become a critical task for effective traffic management, surveillance, and transportation systems. It plays a crucial role in optimizing road infrastructure, enhancing safety measures, and making informed decisions for traffic planning. With the ever-increasing traffic congestion and road safety concerns, the demand for a robust and automated vehicle counting and classification system has grown significantly. Traditionally, vehicle counting, and classification involved manual deployment of sensors or fixed cameras at specific locations. Fortunately, recent advancements in deep learning models have revolutionized object detection, making real-time vehicle counting and classification achievable. One such model is the YOLO algorithm based on the Dark net framework. A real-time vehicle counting, and classification system has been developed, utilizing the Open CV library. The system employs a pertained YOLO model to detect the number of vehicles present in a given video and classifies the type of each vehicle. Moreover, it handling traffic conditions and different vehicle types, which enhances its accuracy and reliability. It provides valuable data for traffic analysis, enabling better traffic management strategies and improved infrastructure planning. Authorities can efficiently address traffic congestion, implement targeted safety measures, and optimize traffic flow. YOLO algorithm within the Dark net framework in the proposed system has opened new possibilities for real-time traffic management. By leveraging deep learning, this system offers a reliable and efficient solution to the challenges posed by modern traffic scenarios, helping to create safer and more organized road networks for everyone.

Key Words: YOLO, Dark net framework, Open CV, Traffic Congestion.

Paper ID: ICRICEIT-23-039

Expert System Application Design for Enhanced Dental Disease Diagnosis

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ABSTRACT

Dentistry is an ever-evolving field, and nowadays, there's a strong emphasis on harnessing technology to improve the diagnosis and treatment of dental diseases. In the past, dentists relied solely on their skills and experience to diagnose these problems. They would manually examine patients, study the data, and take into consideration the patient's medical history to diagnosis. Additionally, the time-consuming process of manually analyzing large datasets slows down the diagnosis. As a result, there's a growing demand for a smarter system. To improve the accuracy and efficiency of dental disease diagnosis, experts have been exploring the potential of expert systems, a type of AI that mimics human decision-making abilities. These systems have the capacity to revolutionize dental diagnosis by providing timely and accurate assessments, leading to more effective treatment plans and better patient outcomes. The goal of this project is to develop an advanced technological tool that assists accurately diagnosing dental diseases. By leveraging the power of AI, is significantly enhance accuracy and efficiency of dental diagnosis, resulting in improved treatment planning and patient care. Additionally, it can serve as a valuable resource for dentists, providing evidence-based insights and real-time updates from the dental research community to support their clinical decisions. The capabilities of AI, this system can enhance the overall performance of dental professionals, leading to better patient outcomes and improved oral health. Furthermore, it highlights the promising role of AI in revolutionizing healthcare practices, setting the stage for advancements in medical diagnostics.

Key Words: Harnessing Technology, Time-consuming Process, Datasets, AI.

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Paper ID: ICRICEIT-23-040

Deep learning-based Intrusion Detection System in Industrial Internet of Things

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ABSTRACT

Information and communications technology (ICT) systems and networks handle various sensitive user data that are prone to various attacks from both internal and external intruders. These attacks can be manual, machine generated, diverse and are gradually advancing in obfuscations resulting in undetected data breaches. For instance, the Yahoo data breach had caused a loss of $350M and Bit coin breach resulted in a rough estimate of $70M loss. Malicious cyber-attacks pose serious security issues that demand the need for a novel, flexible and more reliable IDS. An IDS is a proactive intrusion detection tool used to detect and classify intrusions, attacks, or violations of the security policies automatically at network-level and host-level infrastructure in a timely manner. The common issues ML models are: firstly, models produce high false positive rate with wider range of attacks; secondly, the models are not generalizable; thirdly, the models unseen today's huge network traffic; and finally the solutions are required increasing high-speed network size, and dynamics. This project proposes a hybrid intrusion detection system (IDS) that utilizes a scalable framework on commodity hardware servers to analyze network and host-level activities. The framework employs DNNs for real-time analysis of large-scale data. The performance of the DNN model is compared to classical ML classifiers on benchmark IDS datasets, demonstrating superior results. By collecting real-time host-based and network-based features, the proposed DNN model effectively detects attacks and intrusions, outperforming previous classical machine learning classifiers in both host-based IDS and network-based IDS.

Key Words: ICT, IoT, IDS, DNNs, HIDs, NID.

Paper ID: ICRICEIT-23-041

Performance Evaluation and Optimization of Federated Learning Algorithms in Edge Computing

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ABSTRACT

Multi access Edge Computing (MEC) is used to move the cloud services to network edge enabling low latency and real time processing of applications using computational offloading. Deep Neural Networks (DNNs) for Machine Learning (ML) are gaining popularity due to their broad range of applications, ease of implementation, and cutting-edge performance. DNNs have traditionally been used in MEC to collect data from mobile phones/IoT devices/SNs, train the model in the cloud, and then deploy the model to the edge. Federated Learning (FL) is a new method for training DNNs cooperatively on mobile devices without exposing private user data. Previous research has demonstrated that non-Independent and Identically Distributed (non-IID) user data slows down the FL algorithms' convergence speed. Furthermore, the majority of extant FL research evaluates global-model performance. In many circumstances, such as user content recommendation, the primary goal is to improve individual User model Accuracy (UA). To address these issues, this work proposes a FL algorithm that introduces non-federated Batch-Normalisation (BN) layers into the federated DNN. This is compatible with popular iterative FL optimisation algorithms such as Federated Averaging (Fed Avg), and the proposed system show empirically that a distributed form of Adam optimisation (Fed Avg-Adam) benefits convergence speed even further when used as the optimisation strategy within the algorithm. Finally, this system evaluates the performance of fed avg, fedadam, fedavg-adam algorithms for edge computing scenarios that can lead to improved model accuracy, reduced communication overhead, and decreased energy consumption, making it more practical and scalable for real-world edge applications.

Key Words: MEC, DNNs, FL, non- IID, BN, UA, Machine Learning.

Paper ID: ICRICEIT-23-042

Statistical Analysis of Breach Incident Data with Prediction of Cyber Hacking Breaches

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ABSTRACT

Data breaches are a really serious problem in the world of cyber security. According to the Privacy Rights Clearinghouse, there were a staggering 7,730 data breaches from 2005 to 2017, with a mind-boggling 9,919,228,821 records breached! That's a lot of sensitive information exposed to potential harm. The situation seems to be getting worse each year. In 2016 alone, there were 1,093 data breach incidents reported by the Identity Theft Resource Centre and Cyber Scout, which was a 40% increase compared to the 780 incidents reported in 2015.The consequences of these data breaches are not just limited to individuals but also impact organizations and even the government. Despite technological advancements in cyber security, data breaches continue to pose a huge challenge. So, researchers are trying to understand the patterns and evolution of these incidents to develop better strategies for dealing with them. In this context, this work proposes statistical analysis of breach incident data with prediction of cyber hacking breaches using a data set of cyber hacking activities and malware attacks spanning 12 years from 2005 to 2017. This sheds light on the evolution of hacking breach incidents and helps in gaining valuable insights into the nature of cyber threats. Further, this work also discovered that while the frequency of cyber hacks is increasing, the magnitude of the damage caused by these breaches has not seen a proportional increase. This finding provides some reassurance amidst the alarming rise in data breaches.

Key Words: Data breaches, Staggering, Cyber hacking, Cyber Scout.

Paper ID: ICRICEIT-23-043

URL-Based Phishing Detection Mechanism: Exploring Logistic Regression and K-Nearest Neighbour Classifier

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ABSTRACT

Phishing is a fraudulent technique that uses social and technological tricks to steal customer identification and financial credentials. Social media systems use spoofed e-mails from legitimate companies and agencies to enable users to use fake websites to divulge financial details like usernames and passwords. Phishers use multiple methods, including email, URL, instant messages, forum postings, telephone calls, and text messages to steal user information. Phishing attack is the simplest way to obtain sensitive information from innocent users. Aim of the phishers is to acquire critical information like username, password, and bank account details. Phishing assault is a most straightforward approach to get delicate data from honest clients. Point of the phishers is to obtain basic data like username, secret key, and ledger subtleties. To overcome the drawbacks of blacklist and heuristics-based method, many security researchers now focused on machine learning techniques. Machine learning technology consists of many algorithms which require past data to decide or prediction on future data. Using this technique, algorithm will analyze various blacklisted and legitimate URLs and their features to accurately detect the phishing websites including zero- hour phishing websites. Cyber security persons are now looking for trustworthy and steady detection techniques for phishing websites detection. This work deals with machine learning technology for detection of phishing URLs by extracting and analyzing various features of legitimate and phishing URLs. In addition, the main motive of this research is to detect phishing URLs as well as narrow down to best machine learning algorithm by comparing accuracy of each algorithm.

Key Words: MEC, DNNs, FL, non- IID, BN, UA, Machine Learning.

Paper ID: ICRICEIT-23-044

Modified TFIDF with Machine Learning Classifier for Hate Speech Detection on Twitter

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ABSTRACT

Hate speech refers to any form of communication, whether written, spoken, or symbolic, that discriminates, threatens, or incites violence against individuals or groups based on attributes such as race, religion, ethnicity, gender, sexual orientation, or disability. Social media platforms like Twitter have become hotspots for hate speech due to their wide user base and ease of communication. The sheer volume of tweets generated every day makes it impractical to manually review and classify them for hate speech. Traditional methods for hate speech detection often rely on lexicon-based approaches, where predefined lists of offensive or discriminatory terms are used to flag potentially hateful content. However, these methods often struggle to adapt to the constantly evolving nature of hate speech and lack the context required to accurately distinguish between hate speech and other forms of expression. Given the limitations of traditional approaches, there is a need for advanced techniques that can automatically identify hate speech on Twitter. Machine learning classifiers provide a promising solution by leveraging the power of algorithms to learn patterns and features from large datasets. By using a modified TF-IDF approach, we can capture the unique characteristics of hate speech and develop a robust model capable of accurately detecting such content.

Key Words: Sheer volume, Lexicon-based Approaches, TF-IDF approach, ML.

Paper ID: ICRICEIT-23-045

Artificial Neural Networks for Edge and Fog computing-based Energy Prediction

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ABSTRACT

Edge and Fog Computing have become increasingly popular in recent times as innovative distributed computing paradigms that bring computational power closer to the data source. In the realm of energy prediction, the traditional approach involves utilizing statistical methods, time series analysis, and regression models. They often require manual feature engineering, overlooking intricate relationships within the data, and leading to limited predictive performance, especially when dealing with complex and non-linear datasets. On the other hand, accurate energy prediction holds immense significance for sustainable energy management, especially in the context of modern smart grid systems and IoT applications. Conventional forecasting methods often struggle to adapt to rapidly changing energy consumption patterns and grapple with the processing of large-scale data, resulting in suboptimal resource allocation. Approaches that can offer more accurate, reliable, and real-time energy predictions to enhance energy efficiency and reduce costs. The objective of this project is to delve into the techniques and solutions for an extension of smart grids. In this context, Artificial Neural Networks (ANNs) emerge as a powerful tool. ANNs can automatically learn and extract patterns from data without requiring extensive manual feature engineering. The outcomes of this study carry wide-ranging implications, as they can significantly enhance energy management systems, optimize resource allocation, and contribute to overall sustainability efforts. With the integration of ANNs and distributed computing, the proposed approach holds the potential to revolutionize energy prediction and further advance the field of energy management in smart grids.

Key Words: Distributed computing, Regression models, IoT, prediction, ANN.

Paper ID: ICRICEIT-23-046

Application of Machine Learning: The Impact of Social Media on Enhancing Women's Safety in Indian Cities

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ABSTRACT

Women and girls have been experiencing a lot of violence and harassment in public places in various cities starting from stalking and leading to sexual harassment or sexual assault. There have been several studies that have been conducted in cities across India and women report similar type of sexual harassment and passing off comments by other unknown people. The study that was conducted across most popular Metropolitan cities of India including Delhi, Mumbai, and Pune, it was shown that 60 % of the women feel unsafe while going out to work or while travelling in public transport. This work basically focuses on the role of social media in promoting the safety of women in Indian cities with special reference to the role of social media websites and applications including Twitter platform Face book and Instagram. This work also focuses on how a sense of responsibility on part of Indian society can be developed the common Indian people so that they should focus on the safety of women surrounding them. Tweets on Twitter which usually contains images and text and also written messages and quotes which focus on the safety of women in Indian cities can be used to read a message amongst the Indian Youth Culture and educate people to take strict action and punish those who harass the women. Twitter and other Twitter handles which include hash tag messages that are widely spread across the whole globe sir as a platform for women to express their views about how they feel while they go out for work or travel in a public transport and what is the state of their mind when they are surrounded by unknown men and whether these women feel safe or not?

Key Words: Instagram, websites, Hash Tag messages, Machine Learning.

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Paper ID: ICRICEIT-23-047

Time Series Analysis-based Prediction of Dengue Spread using Climate Data

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ABSTRACT

Dengue is a human arbovirus disease transmitted by the female mosquito of the genus Aedes, mainly Aedes aegypti and Ae. albopictus. Dengue, the most frequent arthropod-borne viral disease, is prevalent in tropical and subtropical regions. Two major clinical forms of dengue illness involve the mild form of dengue fever and severe form mostly characterized by plasma leakage with or without haemorrhage. Two-fifths of the world population (about 2.5 billion people) is at risk of dengue infection. The prevalence of this disease has grown dramatically in the recent decades. Between 50 and 100 million people are infected each year worldwide and more than 500,000 are hospitalized. The average annual incidence was multiplied by thirty in the last fifty years. Incidence of dengue haemorrhagic fever (DHF) is increasing in many tropical regions inducing 20,000 deaths per year, mostly among children under 15 years. Dengue is endemic in all surrounding countries with the four serotypes circulating in the region within a period of ten years. Countries or territories with the highest number of reported dengue cases were Puerto Rico, the Dominican Republic, Martinique, Trinidad and Tobago and French Guiana. Population movement is an important factor in the virus dissemination. It contributes to carry new virus strains, but it also participates to introduce non immune subjects in an endemic area. This proposed system is built to predict the spread of dengue fever with climate data using the concept of time series analysis. In addition, this project also performs the exploratory data analytics on the dengue dataset over a period of time. Finally, prediction analysis also performed with the usage of advancement rendered by machine learning algorithms.

Key Words: Haemorrhagic, DHF, prediction, ML.

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Paper ID: ICRICEIT-23-048

Electricity Theft Cyber Attack Detection and Prediction for Future IoT-based Smart Electric Meters

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ABSTRACT

Electricity theft represents a pressing problem that has brought enormous financial losses to electric utility companies worldwide. The smart grid paradigm opens the door to new forms of electricity theft attacks. First, electricity theft can be committed in a cyber manner. With the advanced metering infrastructure (AMI), smart meters are installed at the customers' premises and regularly report the customers' consumption for monitoring and billing purposes. In this work, two approaches are adopted when renewable DG units are integrated in the power grid, namely, the net metering system and the feed-in tariffs (FITs) policy. On the other hand, in the FIT policy, which is referred to as clean energy cash back, customers sell all their generated energy to the grid and get paid in exchange. The incentives offered by the FIT programs are more effective compared with net metering for promoting renewable energy. Hence, FIT requires two meters to be installed in the customer premises, one meter is a selling meter that monitors the energy generated from the DG unit, which is directly injected (sold) to the grid, and the other meter is a buying meter that monitors the consumption. Thus, consumption and generation can be charged independently. In this two-metering system, malicious customers can manipulate the integrity of the reported energy generation data to claim higher supplied energy to the grid and hence falsely overcharge the electric utility company. The DG domain and requires a better attention. Therefore, this work evaluating performance of various deep learning algorithms such as deep feed forward neural network (DNN), recurrent neural network with gated recurrent unit (RNN-GRU) and convolution neural network (CNN) for electricity cyber-attack detection.

Key Words: AMI, DG, FITs, DNN, RNN-GRU, CNN.

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Paper ID: ICRICEIT-23-049

A Combined Approach of DWT-DCT for Blind Medical Image Water Marking

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ABSTRACT

With the rapid advancement of digital technologies, the sharing and distribution of medical images have become widespread, posing serious security challenges. To protect sensitive medical data from unauthorized access and tampering, watermarking has emerged as a crucial security measure. In addition, the concept of watermarking has become vital in preserving the integrity and authenticity of these images. Traditional watermarking techniques faced limitations in terms of robustness and visibility, especially for medical imaging, where image quality is paramount. To overcome these challenges, this work introduces an innovative blind medical image watermarking technique that combines the Discrete Wavelet Transform (DWT) and Discrete Cosine Transform (DCT). The proposed method ensures robust and imperceptible watermark embedding and retrieval while maintaining the visual quality of medical images. The significance of robust and imperceptible medical image watermarking cannot be overstated. As medical institutions increasingly adopt digital practices like telemedicine and electronic health records, the risk of data breaches, tampering, and unethical practices also rises. An efficient watermarking technique is crucial to protect patient privacy, maintain trust in medical institutions, and ensure the authenticity of medical data. The combined DWT-DCT approach presented in this paper offers a promising solution by enabling secure watermark embedding and retrieval, ensuring tamper detection and authentication.

Key Words: DWT, DCT, Watermark Embedding, Tamper Detection.

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Paper ID: ICRICEIT-23-050

Review Paper on Big Data Analytics

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ABSTRACT

In the information era, enormous amounts of data have become available on hand to decision makers. Big data refers to datasets that are not only big, but also high in variety and velocity, which makes them difficult to handle using traditional tools and techniques. Due to the rapid growth of such data, solutions need to be studied and provided in order to handle and extract value and knowledge from these datasets. Furthermore, decision makers need to be able to gain valuable insights from such varied and rapidly changing data, ranging from daily transactions to customer interactions and social network data. Such value can be provided using big data analytics, which is the application of advanced analytics techniques on big data. This paper aims to analyse some of the different analytics methods and tools which can be applied to big data, as well as the opportunities provided by the application of big data analytics in various decision domains.

Keywords: Big data, data mining, analytics, decision making.

Paper ID: ICRICEIT-23-051

Data Science and Its Applications in Cyber Security

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ABSTRACT

In a computing context, cyber security is undergoing massive shifts in technology and its operations in recent days, and data science is driving the change. To understand and analyse the actual phenomena with data, various scientific methods, machine learning techniques, processes, and systems are used, which is commonly known as data science. In this paper, I have briefly described the data science its evolution its application s in cloud security and how cyber security data science came in existence what kind of advantages are given by CSDS and its steps like, where the data is being gathered from relevant cyber security sources, and the analytics complement the latest data - driven patterns for providing more effective security solutions. The concept of cyber security data science allows making the computing process more actionable and intelligent as compared to traditional ones in the domain of cyber security. After that I have described the various upcoming challenges that can emerge after the frequent applications of cyber security data science(CSDS), how machine learning and deep learning are applicable in it and types of algorithms that can be applicable in it. So, the overall paper is not only focuses on the origins of Data Science but it also describes its modern uses for the relevant cyber security field and data driven intelligent decision making system can protect our system from known and unknown cyber attacks

Keywords: Data-Driven model, Cyber security data science (CSDS), Security Incident patterns, supervised learning, Cloud security.

Paper ID: ICRICEIT-23-052

Time Series Analysis for Public Decentralized Ledger Price (Satoshi) Prediction with EDA

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ABSTRACT

A "public decentralized ledger" generally refers to a block chain, which is a distributed and immutable digital ledger that records transactions across a network of computers in a secure and transparent manner. Bit coin stands out as the most valuable crypto currency globally, being traded on numerous exchanges and accepted in various currencies. Its market capitalization currently amounts to a staggering $9 billion, with an impressive daily transaction volume of over 250,000. Conventional time series prediction methods, like Holt-Winters exponential smoothing models, rely on linear assumptions and work best when dealing with data exhibiting trend, seasonal, and noise components. Despite facing significant fluctuations and criticisms, Bit coin has managed to capture the attention of investors, including China, which sees it as an investment opportunity. Researchers in the scientific community are equally interested in studying and understanding the market to predict Bit coin's worth. Notably, Bit coin's popularity soared in late 2017, with its price reaching an astonishing $1600 per Bit coin. As a result, machine learning emerges as a promising solution due to its proven performance in similar domains. Therefore, this work utilizes time series analysis to identify patterns in Bit coin's price movement and forecast closing prices for the upcoming days, employing the ARIMA model for this purpose. By applying machine learning techniques to the analysis of financial data, we hope to gain valuable insights into the future of Bit coin prices, which can have both direct and indirect effects on the global economy.

Keywords: Ledger, Crypto Currencies Staggering, Prediction, ARIMA model.

Paper ID: ICRICEIT-23-053

Machine Learning Models for Prediction and Forecasting of CO2 Emission with Exploratory Data Analysis

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ABSTRACT

CO2 emissions play a major role in global warming, leading to serious consequences such as extreme weather events, rising sea levels, and ecological imbalances. To address this pressing issue, it is crucial that we fully understand the factors influencing CO2 emissions in order to develop effective strategies for reduction and sustainability. The growing concern over climate change and its harmful effects on our environment has motivated researchers and policymakers to seek innovative solutions for curbing greenhouse gas emissions, especially CO2 emissions. This is where machine learning steps in as a powerful tool, offering the ability to analyze vast amounts of data and make accurate predictions. This presents a promising avenue for forecasting CO2 emissions and creating sustainable policies. Machine learning allows us to identify hidden patterns and relationships within the data, enabling us to make more precise predictions and reliable forecasts. Therefore, this work focuses on exploring various machine learning models for predicting and forecasting CO2 emissions. Additionally, we plan to incorporate exploratory data analysis (EDA) techniques, which will help us visualize and interpret the data effectively. Through EDA, we can identify crucial features, understand data distributions, and pinpoint outliers that might influence model performance. The significance of our study lies in the valuable insights it can provide to policymakers and environmentalists. By making accurate predictions about CO2 emissions, we can help design effective policies that control and reduce emissions, optimize resource allocation, and promote the shift towards renewable energy sources. Furthermore, precise forecasts can assist in planning adaptation measures to mitigate the impact of climate change.

Keywords: Global warming, Predictions, EDA, ML, Hidden patterns.

Paper ID: ICRICEIT-23-054

Sarcam Net: Extension of Lexicon Algorithm for Emoji-based Sarcasm Detection from Twitter Data

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ABSTRACT

Since the industrial revolution, the original way of communicating; face-to-face communication has been used as a model to develop the various ways of communicating known to date. Sarcasm, a form of verbal irony, is a prevalent means of communication on such platforms. However, detecting sarcasm in online content poses a significant challenge due to the absence of vocal intonations and facial expressions. This necessitates the development of reliable methods to automatically identify and understand sarcasm in tweets. Sarcasm makes use of positive lingual contents to convey a negative message. Different types of approaches have been developed to implement sarcasm detection on online communication platforms. Lexicon algorithm is used to determine the sentiment expressed by a textual content. This sentiment might be negative, neutral, or positive. It is possible to be sarcastic using only positive or neutral sentiment textual contents. Hence, lexicon algorithm can be useful but insufficient for sarcasm detection. It is necessary to extend the lexicon algorithm to come up with systems that would be proven efficient for sarcasm detection on neutral and positive sentiment textual contents. In this work, two sarcasm analysis systems both obtained from the extension of the lexicon algorithm have been proposed for that sake. The first system consists of the combination of a lexicon algorithm and a pure sarcasm analysis algorithm. The second system consists of the combination of a lexicon algorithm and a sentiment prediction algorithm. Finally, the proposed model aims to detect the sarcasm from the text and emotion icon with improved efficiency.

Keywords: Sarcasm, Lexicon, sarcastic, sarcasm analysis.

Paper ID: ICRICEIT-23-055

Wavelet Based Estimation of Images Using New Thresholding Function

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ABSTRACT

An image is often corrupted by noise in its acquisition and transmission. Removing noise from the original image is still a challenging problem for researchers. In this work new approach of threshold function developed for image denoising algorithms. It uses wavelet transform in connection with threshold functions for removing noise. Visu Shrink, Bayes Shrink, are compared with our threshold function, it improves the PSNR efficiently

Keywords: Dual Tree Complex wavelet transform (DTCWT), Bivariate shrinkage, Bayes shrinkage, Peak signal to noise ratio (PSNR), Structural similarity index (SSIM).

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Paper ID: ICRICEIT-23-056

A Cluster based Scheduling Algorithm (CBSA) for Multiprocessor Systems

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ABSTRACT

The dynamic tasks scheduling of parallel tasks in multiprocessor systems is a challenging problem that is being experimented by the researchers. In this paper a Cluster based tasks scheduling model and a scheduling algorithm CBSA (Cluster based Scheduling algorithm) has been proposed with a lower time complexity. Furthermore, the simulation experiments show that, the scheduling model and scheduling algorithm are flexible a higher scheduling successful ratio may be obtained by this algorithm-for-parallel-jobs-with-large-number-of-tasks.

Keywords: DAG, Dynamic Scheduling, Task, Multiprocessor, Schedule length, Homogeneous.

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Paper ID: ICRICEIT-23-057

A Patient's Health Care Monitoring System Based on Internet of Things (IOT): Related Challenges and Issues

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ABSTRACT

Wireless sensor networks (WSNs) are widely used in the area of health informatics. Wireless and wearable sensors have become prevalent devices to monitor patients at risk for chronic diseases. This helps as certain that patients comply by the treatment plans and safeguard them during sudden attacks. The amount of data that are gathered from various sensors is numerous. Health monitoring systems are one of the most notable applications of IoT. Many types of designs and patterns have already been implemented to monitor a patient's health condition through IoT. In this paper, are view of IoT based smart health monitoring systems is presented. The latest innovative technologies developed for IoT based smart health monitoring system with their merits and demerits have been discussed. This review aims to highlight the common design and implementation patterns of intelligent IoT based smart health monitoring devices for patients. Also introduces the general outlines on opportunities and challenges of the patient's Internet-based patient health monitoring system.

Keywords: Intelligent smart health monitoring, internet of things.

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Paper ID: ICRICEIT-23-058

Rainfall Prediction Using Machine Learning Technique

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ABSTRACT

Rainfall is one of the most paramount phenomena of climate system. It is prominent that the variability and intensity of rainfall act on natural, agricultural, human and even total biological system. So it is essential to be able to predict rainfall by ascertaining the congruous prognosticators. The utilization of logistic regression modelling has exploded during the past decennium for prognostication and forecasting. From its pristine acceptance in epidemiologic research, the method is now commonly employed in virtually all branches of cognizance. In this paper an endeavor has been made to utilize logistic regression for soothsaying rainfall. It is conspicuous that the climatic data are often subjected to gross recording errors though this quandary often goes unnoticed to the analysts. In this paper a very recent screening methods is utilized to check and rectify the climatic data that is utilized in this study. This project have utilized fourteen years' daily rainfall data to formulate our model. Then utilize two years' visually examined daily rainfall data treating them as future data for the cross validation of this model. This project findings pellucidly show that if this is able to optate congruous prognosticators for rainfall, logistic regression model can prognosticate the rainfall very efficiently.

Keywords: Climatic Variables, Spurious Observations, Outliers, Logistic Regression, Generalized Standardized Pearson Residuals, Cross Validation, Cohen's Kappa, Misclassification.

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Paper ID: ICRICEIT-23-059

Smart Security System for ATM Using Internet of Things

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ABSTRACT

In the era of digitization, everyone needs money without interaction with the bank at any time. For that, ATM is installed everywhere in the localities. As the number of ATMs increased, prevention of larceny and security of customer becomes the prime objective. At present, security systems are not highly secured as they are only provided with alarm system and under the perception of CCTV. The aim of this project is to develop and implement an ATM security system based on a wireless sensor network. When a thief enters and tries to harm the machine, the door of the ATM room gets locked, and the sprinkler sprinkles the chloroform to make the thief unconscious. The buzzer will alert the nearby people of the ATM system. Simultaneously, the message will send to an authorized person of the bank and police station. This will prevent the robbery, and the person involving in the robbery can be easily caught on the spot.

Keywords: Internet of Things (IOT), Controller, ATM, Buzzer, Wireless Sensors.

Paper ID: ICRICEIT-23-060

An Efficient Algorithm for Hand Written Script Recognition Using Transform Based Approach with Image Statistics

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ABSTRACT

In present scenario world forgery of hand written script is very much increased. Novel techniques are there to identify a correct hand written script. Hand written or bio metric hand written scripts are widely used for authentication and identification of a person because every person has a own style of Telugu hand written script with its specific structures, so it is needy and necessary to recognize the authenticity of person hand written Telugu hand written script. There are limitations and complexities in recognizing a hand written script image due to lack of abundant technical literature and sophisticated optimal methodologies. , we introduced an efficient approach for hand written Telugu Hand written script recognition and retrieval using transformation-based approach Non-subsampled contourlet transform used for texture classification and the transform consists of Non-subsampled pyramid filter bank and Nonsubsampled directional filter bank also gray level matrix is used to extract the texture features. In addition, image statistics is computed to enhance the recognition performance further. Finally, computed hamming distance. It measures the similarity between trained and test images, it is an effective distance metric over conventional Euclidean distance.

Keywords: Hand written script images, Handwritten script, texture features, statistical properties, non-sub sampled contourlet transform and hamming distance.

Paper ID: ICRICEIT-23-061

Forecasting Hospital Admissions using Data Mining

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ABSTRACT

Crowding within emergency departments (EDs) can have significant negative consequences for patients. EDs therefore need to explore the use of innovative methods to improve patient flow and prevent overcrowding. One potential method is the use of data mining using machine learning techniques to predict ED admissions. This paper uses routinely collected administrative data (120 600 records) from two major acute hospitals in Northern Ireland to compare contrasting machine learning algorithms in predicting the risk of admission from the ED. We use three algorithms to build the predictive models: 1) logistic regression; 2) decision trees; and 3) gradient boosted machines (GBM). The GBM performed better (accuracy D 80:31%, AUC-ROC D 0:859) than the decision tree (accuracy D 80:06%, AUC-ROC D 0:824) and the logistic regression model (accuracy D 79:94%, AUC-ROC D 0:849). Drawing on logistic regression, we identify several factors related to hospital admissions, including hospital site, age, arrival mode, triage category, care group, previous admission in the past month, and previous admission in the past year. This paper highlights the potential utility of three common machine learning algorithms in predicting patient admissions. Practical implementation of the models developed in this paper in decision support tools would provide a snapshot of predicted admissions from the ED at a given time, allowing for advance resource planning and the avoidance bottlenecks in patient flow, as well as comparison of predicted and actual admission rates When interpretability is a key consideration, EDs should consider adopting logistic regression models, although GBM's will be useful where accuracy is paramount.

Keywords: ED, Data Mining, Machine Learning.

Paper ID: ICRICEIT-23-062

Heart Disease Prediction Using Machine Learning UCI Dataset

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ABSTRACT

Heart play's significant role in living organisms. Diagnosis and prediction of heart related diseases requires more precision, perfection and correctness because a little mistake can cause fatigue problem or death of the person, there are numerous death cases related to heart and their counting is increasing exponentially day by day. To deal with the problem there is essential need of prediction system for awareness about diseases. Machine learning is the branch of Artificial Intelligence (AI), it provides prestigious support in predicting any kind of event which take training from natural events. In this paper, we calculate accuracy of machine learning algorithms for predicting heart disease, for this algorithm are k-nearest neighbor, decision tree, linear regression and support vector machine (SVM) by using UCI repository dataset for training and testing. For implementation of Python programming Anaconda(jupytor) notebook is best tool, which have many types of libraries, header file, that make the work more accurate and precise.

Keywords: Heart Disease, Machine Learning, UCI Dataset.

Paper ID: ICRICEIT-23-063

Multinomial Classification for the Vehicle Popularity Using Machine Learning

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ABSTRACT

A car popularity prediction has been a high interest research area, as it requires noticeable effort and knowledge of the field expert. Considerable number of distinct attributes is examined for the reliable and accurate prediction. To build a model for predicting the popularity of used cars. We applied four machine learning techniques logistic regression, K-Nearest Neighbor, Support Vector Machine and Random Forest. However, the mentioned techniques were applied to work as an ensemble. The data used for the prediction was collected from the web portal petite announces. Respective performances of different algorithms were then compared to find one that best suits the available data set. The final prediction model was integrated into python application. Furthermore, the model was evaluated using test data and the accuracy obtained.

Keywords: Vehicle Popularity Prediction, Logistic Regression, SVM and Random Forest.

Paper ID: ICRICEIT-23-064

Prediction of Flight Delays MSE Error Calculation Using Regression Method

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ABSTRACT

Flight delay is a major problem in the aviation sector. During the last two decades, the growth of the aviation sector has caused air traffic congestion, which has caused flight delays. Flight delays result not only in the loss of fortune also negatively impact the environment. Flight delays also cause significant losses for airlines operating commercial flights. Therefore, they do everything possible in the prevention or avoidance of delays and cancellations of flights by taking some measures. In this paper, using machine learning models such as Logistic Regression, Decision Tree Regression, Bayesian Ridge, Random Forest Regression and Gradient Boosting Regression we predict whether the arrival of a particular flight will be delayed or not.

Keywords: Flight Delay Prediction, Logistic Regression, Bayesian Ridge, Gradient Boosting.

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Paper ID: ICRICEIT-23-065

Enabling Health Data Sharing with Fine-Grained Privacy

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ABSTRACT

Sharing health data is vital in advancing medical research and transforming knowledge into clinical practice. Meanwhile, protecting the privacy of data contributors is of paramount importance. To that end, several privacy approaches have been proposed to protect individual data contributors in data sharing, including data anonymization and data synthesis techniques. These approaches have shown promising results in providing privacy protection at the dataset level. In this work, we study the privacy challenges in enabling fine-grained privacy in health data sharing. Our work is motivated by recent research findings, in which patients and healthcare providers may have different privacy preferences and policies that need to be addressed. Specifically, we propose a novel and effective privacy solution that enables data curators (e.g., healthcare providers) to protect sensitive data elements while preserving data usefulness. Our solution builds on randomized techniques to provide rigorous privacy protection for sensitive elements and leverages graphical models to mitigate privacy leakage due to dependent elements. To enhance the usefulness of the shared data, our randomized mechanism incorporates domain knowledge to preserve semantic similarity and adopts a block-structured design to minimize utility loss. Evaluations with real-world health data demonstrate the effectiveness of our approach and the usefulness of the shared data for health applications.

Keywords: Data Anonymization, semantic similarity and data synthesis.

Paper ID: ICRICEIT-23-066

Relevance-based Infilling for Natural Language Counterfactuals

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ABSTRACT

Counterfactual explanations are a natural way for humans to gain understanding and trust in the outcomes of complex machine learning algorithms. In the context of natural language processing, generating counterfactuals is particularly challenging as it requires the generated text to be fluent, grammatically correct, and meaningful. In this study, we improve the current state of the art for the generation of such counterfactual explanations for text classifiers. Our approach, named RELITC (Relevance-based Infilling for Textual Counterfactuals), builds on the idea of masking a fraction of text tokens based on their importance in a given prediction task and employs a novel strategy, based on the entropy of their associated probability distributions, to determine the infilling order of these tokens. Our method uses less time than competing methods to generate counterfactuals that require less changes, are closer to the original text and preserve its content better, while being competitive in terms of fluency. We demonstrate the effectiveness of the method on four different datasets and show the quality of its outcomes in a comparison with human generated counterfactuals.

Keywords: Textual Counterfactuals, Natural Language Processing.

Paper ID: ICRICEIT-23-067

Fast and Fair Multi-Criteria Selections

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ABSTRACT

Traditional multi-criteria selection methods are the leading approach for selecting a set of candidates when multiple criteria determine selection relevancy. For instance, hiring platforms combine candidates' proximity, skills, and years of experience to build shortlists for recruiters. While these methods succeed in efficiently selecting candidates, their chosen set may unfairly affect marginalized candidate groups (e.g., race or gender). Bridging the gap between traditional fairness-unaware multi-criteria selection and contemporary fairness interventions, we characterize the open problem of fair multi-criteria selection. We design Fair&Share the first efficient fairness-tunable multi-criteria selection method. Fair&Share supports several fair representation notions. The key to Fair&Share is the design of its group-aware utility objective. Fair&Share uses a novel fairness calibration component to provide a user-friendly tuning mechanism for controlling the balance between selection relevancy (utility) and representation fairness. Our fairness-focused selection policy iteratively builds the result set by prioritizing candidates as aiding either the fair representation or the shared overall utility goals. We prove the optimality of Fair&Share, meaning that Fair&Share selects the best possible candidates such that the desired fair representation is achieved. Our experimental study demonstrates that Fair&Share achieves the best fairness and utility performance of state-of-the-art alternatives adapted to this new problem while taking a fraction of the time.

Keywords: Multi-criteria selection, fairness-tunable, fairness-focused.

Paper ID: ICRICEIT-23-068

Inducing Causal Structure for Abstractive Text Summarization

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ABSTRACT

The mainstream of data-driven abstractive summarization models tends to explore the correlations rather than the causal relationships. Among such correlations, there can be spurious ones which suffer from the language prior learned from the training corpus and therefore undermine the overall effectiveness of the learned model. To tackle this issue, we introduce a Structural Causal Model (SCM) to induce the underlying causal structure of the summarization data. We assume several latent causal factors and non-causal factors, representing the content and style of the document and summary. Theoretically, we prove that the latent factors in our SCM can be identified by fitting the observed training data under certain conditions. On the basis of this, we propose a Causality Inspired Sequence-to-Sequence model (CI-Seq2Seq) to learn the causal representations that can mimic the causal factors, guiding us to pursue causal information for summary generation. The key idea is to reformulate the Variational Auto-encoder (VAE) to fit the joint distribution of the document and summary variables from the training corpus. Experimental results on two widely used text summarization datasets demonstrate the advantages of our approach.

Keywords: Abstractive Summarization, Structural Causal Model, SCM.

Paper ID: ICRICEIT-23-069

Robustly Discerning Reliable Answers in Large Language Models

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ABSTRACT

Large language models (LLMs) have gained widespread adoption in various natural language processing tasks, including question answering and dialogue systems. However, a major drawback of LLMs is the issue of hallucination, where they generate unfaithful or inconsistent content that deviates from the input source, leading to severe consequences. In this paper, we propose a robust discriminator named RelD to effectively detect hallucination in LLMs' generated answers. RelD is trained on the constructed RelQA, a bilingual question-answering dialogue dataset along with answers generated by LLMs and a comprehensive set of metrics. Our experimental results demonstrate that the proposed RelD successfully detects hallucination in the answers generated by diverse LLMs. Moreover, it performs well in distinguishing hallucination in LLMs' generated answers from both in-distribution and out-of-distribution datasets. Additionally, we also conduct a thorough analysis of the types of hallucinations that occur and present valuable insights. This research significantly contributes to the detection of reliable answers generated by LLMs and holds noteworthy implications for mitigating hallucination in the future work.

Keywords: Large language models, robust discriminator, hallucination.

Paper ID: ICRICEIT-23-070

Incorporating Constituent Syntax into Grammatical Error Correction with Multi-Task Learning

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ABSTRACT

Grammatical Error Correction (GEC) is usually considered as a translation task where an erroneous sentence is treated as the source language and the corrected sentence as the target language. The state-of-the-art GEC models often adopt transformer-based sequence-to-sequence architecture of machine translation. However, most of these approaches ignore the syntactic information because the syntax of an erroneous sentence is also full of errors and not beneficial to GEC. In this paper, we propose a novel Error-Correction Constituent Parsing (ECCP) task which uses the constituent parsing of corrected sentences to avoid the harmful effect of the erroneous sentence. We also propose an architecture that includes one encoder and two decoders. There are millions of parameters in transformer-based GEC models, and the labeled training data is substantially less than synthetic pre-training data. Therefore, adapter layers are added to the proposed architecture, and adapter tuning is used for fine-tuning our model to alleviate the low-resource issue. We conduct experiments on CoNLL-2014, BEA-2019, and JFLEG test datasets in unsupervised and supervised settings. Experimental results show that our method outperforms the-state-of-art baselines and achieves superior performance on all datasets.

Keywords: Grammatical Error Correction, Error-Correction Constituent Parsing, ECCP.

Paper ID: ICRICEIT-23-071

Identifying Inappropriate Videos for Young Children on YouTube

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ABSTRACT

YouTube videos are one of the most effective platforms for disseminating creative material and ideas, and they appeal to a diverse audience. Along with adults and older children, young children are avid consumers of YouTube materials. Children often lack means to evaluate if a given content is appropriate for their age, and parents have very limited options to enforce content restrictions on YouTube. Young children can thus become exposed to inappropriate content, such as violent, scary or disturbing videos on YouTube. Previous studies demonstrated that YouTube videos can be classified into appropriate or inappropriate for young viewers using video metadata, such as video thumbnails, title, comments, etc. Metadata-based approaches achieve high accuracy, but still have significant misclassifications, due to the reliability of input features. In this paper, we propose a fusion model, called Samba, which uses both metadata and video subtitles for content classification. Using subtitles in the model helps better infer the true nature of a video improving classification accuracy. On a large-scale, comprehensive dataset of 70K videos, we show that Samba achieves 95% accuracy, outperforming other state-of-the-art classifiers by at least 7%. We also publicly release our dataset.

Keywords: Metadata-based approach, content classification.

Paper ID: ICRICEIT-23-072

Hybrid artificial intelligence based vulnerability analysis in IOT using deep learning

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ABSTRACT

Hybrid Artificial Intelligence (AI) vulnerability analysis in IoT security using deep learning is an advanced method that effectively detects and mitigates vulnerabilities in connected environments by combining the power of deep learning algorithms with the context of the Internet of Things (IoT). The challenge of ensuring the security of IoT systems has grown significantly in light of the deployments' increasing complexity and scale. This paper gives an exhaustive outline of the ideas, strategies, and procedures engaged with cross breed simulated intelligence weakness examination for IoT security utilizing profound learning. It investigates the use of deep learning models like convolutional neural networks (CNNs), recurrent neural networks (RNNs), and generative adversarial networks (GANs) to look for vulnerabilities in a lot of data generated by IoT devices. Hybrid AI vulnerability analysis makes it possible to automatically extract intricate patterns and features from a variety of IoT data sources, such as sensor readings, network traffic, and system logs, by making use of the capabilities of deep learning. Traditional security methods may miss anomalous behavior, malicious activities, and potential vulnerabilities that these models can effectively identify. Furthermore, real-time vulnerability detection and response is made easier by combining IoT and deep learning. From streaming IoT data, deep learning models can continuously learn and adapt, allowing for dynamic updates to the vulnerability analysis process and improving the speed with which new threats can be detected. It features the significance of information security, reasonableness of profound learning models, and strong preparation strategies to successfully address these difficulties.

Keywords: CNN, GAN, IoT, Hybrid AI vulnerability.

Paper ID: ICRICEIT-23-073

Resolving Security and Data Concerns using Cloud Computing

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ABSTRACT

There are a variety of security concerns around cloud computing infrastructure technology. Some of these include infrastructure security against threats, data privacy, integrity, and infrastructure stability. In modern cloud computing, there are two models that cloud computing infrastructures follow: centralized cloud computing and decentralized cloud computing. Centralized cloud computing is susceptible to outages, data breaches, and other security threats. Decentralized cloud computing is more resilient to outages due to geo redundancy technology and data is better protected by encryption through Reid Solomon erasure coding. Cloud computing facilitates the user by providing the resources of third party in the name of infrastructure, hardware and software over the network. Infrastructures of Cloud computing makes the user to access the data anywhere at any time as long as the user's device has access with the internet. Such activity improves the use of internet application which provides "pay as you go" facility. Hence this flexibility creates an impact upon the user and made them to transfer their data to cloud. But it may lay some security issues also. They were implemented to overcome the security issues and to ensure the Cloud computing data security. Nowadays many techniques of this encryption and decryption were proposed to maintain security in cloud data. Here a study was made on this data and a comparative analysis was presented.

Keywords: Security Practices, Cyber security Data Integrity, Cloud Computing, Decentralized Cloud Computing, Block chain Geo-Redundancy, Reed Solomon Erasure Coding.

Paper ID: ICRICEIT-23-074

Age and Gender Prediction using CNN Algorithm

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ABSTRACT

Gender and age play a key role in most of our social interactions. Biological variances make it very difficult to accurately predict the age and gender of a subject even by a trained human. Age and gender prediction using artificial intelligence has gained a lot of popularity in many industrial and business applications such as customer segmentation, smart human machine interfaces, product development and service improvement. In this project, we propose a mathematical approach relying on deep-learning models to solve the problem of feature detection. This involves 3 major steps. The first one is Face detection using appropriate computer vision libraries. Second one is Age group estimation using a pre-trained Convolutional Neural Network and the third one is Gender prediction using a pre-trained Convolutional Neural Network (ConvNet/CNN) We will further attempt to allow the model to accept images in a live camera setting where a subject can stand in front of the camera to detect the subject's age and gender. This will provide the extent to which our proposed model works in a constrained environment where shadows and other occlusions may decrease the system's efficacy. With adequate training of sample data, the model would be able to predict the age and gender of a subject accurately. We aim to provide statistics on accuracy of detection and propose improvements for future work.

Keywords: Prediction, pixel, accuracy, convolutional system, gender etc.

Paper ID: ICRICEIT-23-075

Identification of Hate Speech using Natural Language Processing and Machine Learning by using Bert Algorithm

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ABSTRACT

The expansion of social media has led to the emergence of conflict and hate online, making these environments uninviting for users. Researchers have identified online hate, such as abusive language, aggression, as a major threat on social media platforms. There is a lack of models for online hate detection, and this can lead to negative impacts on mental health. The main goal of this project is to predict hate speech on social media platforms using ML and NLP. In the system the test data can be analyze and identified the patterns of hate speech using NLP. The test classifier will be trained on a dataset of labeled comments, speech and will use a combination of machine learning algorithms to accurately identify and tag hate speech. The end goal is to create the end system that can be implemented by social media platforms to control the spread of hate speech and improve the online experience for users.

Keywords: Hate, Social Media, NLP.

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Paper ID: ICRICEIT-23-076

Real-Time Driver Drowsiness Detection and Warning System using Artificial Intelligence

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ABSTRACT

Every year the number of fatal injuries and deaths is increasing worldwide. Drowsiness and driver's fatigue are two of the most common causes of car accidents. The driver sleepiness detection system is essential to avoid accidents. In this work we propose an approach to identify drivers' drowsiness using facial and eye expressions. Machine learning techniques have been utilized in this work to anticipate a driver's emotion, which would improve road safety. The authors have used to detect eye movement and Open CV to identify the driver's state effectively. In addition to detecting driver drowsiness, our proposed system can work in adverse conditions, such as varying lighting conditions, use of spectacles, and the presence of a beard on the person's face. Our work is able to classify drowsiness in such extreme conditions as well accurately. If the driver is found to be drowsy, an alarm will be triggered.

Keywords: Drowsiness Detection and warning, Open CV, Driver's emotion.

Paper ID: ICRICEIT-23-077

Design and Implementation of Women Safety Device using IoT

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ABSTRACT

The main aim of this project is to provide security for the woman. As the threats for Women and children increasing day by day we are proposing a system that works on the controversy of children and women security using IoT. The proposed system intends to a device wireless technique in the form of embedded device for women that will serve the purpose of alerts and way of communicating with secure channels. There are many android applications for women safety but they as not as much as efficient. So to solve this issue of women safety we develop a wireless sensor kit which is easy to use and which is efficient to provide help to that victim. So when the victim press emergency button, it will send notification to registered phone numbers with link of latitude and longitudinal position. This saves the time and that victim get help without loss of time. Also in the case of Children security the system proposes a location tracking facilities using GPS, GSM.

Keywords: Women Safety, IoT, GPS, GSM.

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Paper ID: ICRICEIT-23-078

Multi-Format Data Concealment: Steganography Across image, Audio, Video and Text

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ABSTRACT

Steganography is the practice of concealing information within other data, such as images, text, audio, or video files. "Multi-format Data concealment: Steganography across Image, Audio, Video, and Text" is a steganography tool that enables users to hide data in these various file formats. The tool uses advanced algorithms to embed the data in a way that is undetectable to the human eye or ear and can be decrypted only with the correct key. "Multi-format Data concealment: Steganography across Image, Audio, Video, and Text" is designed to be efficient, secure, and fast, with features such as encryption and a command-line interface that make it easy to use. By hiding data in media files, users can ensure secure communication without attracting attention or suspicion. This can be particularly useful for individuals or organizations that need to transmit sensitive information across networks or through other channels. This project supports multiple file formats, including popular image, audio, video, and text formats, making it a versatile option for users. Its ability to embed data across different file types also provides an added layer of security, as it makes it harder for hackers or other unauthorized individuals to detect the hidden data. Overall, "Multi-format Data concealment: Steganography across Image, Audio, Video, and Text" provides a convenient solution for hiding data in media files and ensuring secure communication.

Keywords: Image Steganography, Audio Steganography, Video Steganography, Text Steganography, RC4 and Encryption.

Paper ID: ICRICEIT-23-079

Criminal Identification System using Haar-Cascade Algorithm

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ABSTRACT

Face Recognition and Detection can be considered one of the most successful Biometric identification methods among several types of biometric identification including fingerprints, DNA, palm print, hand geometry, iris recognition and retina. Face recognition provides biometric identification that utilizes the uniqueness of faces for security purposes. The problem with face recognition using biometric identification is its lengthy process and the accuracy of the results. This project proposes solutions for a faster face recognition process with accurate results. The proposed face recognition process was done using a Machine Learning HAAR-Cascade algorithm. This improved face recognition approach was able to recognize multiple faces with high accuracy level. LBPH means Local Binary Pattern Histogram.

Keywords: Criminal Identification, Anaconda tool, Detecting face, Display output.

Paper ID: ICRICEIT-23-080

Abnormal Activity Detection using Deep Learning

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ABSTRACT

Due to the increasing number of violence cases, there is a high demand for efficient monitoring systems, however, these systems can be susceptible to failure. Therefore, this work proposes the analysis and application of this purpose, a dataset with violence and non-violence actions in scenes of crowded and non-crowded environments was assembled, to demonstrate the models' validity, a prototype was developed by using an embedded MaixDuino platform, able to execute a model in real-time with 4 frames-per-second of speed. In addition, a warning system was developed to recognize pre-fight behavior and anticipate violent acts, alerting security to potential situations. Deep Learning techniques (YOLO), have shown excellent results in image and video classification. In different challenges and datasets, these structures have been performing much better than previous proposals. In fact, there are three main advantages of using yolo models in intelligent monitoring systems. First, they are less affected by noise in the data. Second, they achieve higher accuracy than other methods, even sometimes greater than the human eye. Lastly, they have the ability to classify people into different orientations and postures. Moreover, they also do not require a hand-crafted extractor for encoding features, as was performed before the introduction of Deep Learning.

Keywords: Abnormal Activity, Deep Learning, YOLO, Monitoring System, Violence.

Paper ID: ICRICEIT-23-081

An Enhanced Approach to Detect Freshness of Food using IOT and Machine Learning

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ABSTRACT

Food spoilage is a major issue in the modern world because eating spoiled food is bad for customers. Our project seeks to monitor gases released by a specific food item and detect spoiled food using the suitable sensors. A microcontroller detects this and uses the internet of things to send an alert so the proper action can be done. This is widely used in the food industry, where food identification is currently done by hand. We intend to incorporate machine learning into this model in order to predict the likelihood and timeframe of food spoilage if it is purchased from a specific seller. As a result, there will be more competition among retailers to offer more nutritious food and fresh produce, which will improve overall consumer safety.

Keywords: Spoiled food detection, Arduino, Gas Sensor, LCD display, Wi-Fi ESP8266, LED.

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Paper ID: ICRICEIT-23-082

Semantic Classification from Tweet using LSTM Algorithm

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ABSTRACT

As a result of increase in internet usage, there is a massive amount of information available to web users, as well as massive amount of new information being created daily. To facilitate internet pick-up, trading ideas, and disseminating assessments, the internet has evolved into a stage of large volumes of data. Facebook and Twitter generate a lot of data every day. As a result, text handling is crucial in making decisions. Sentiment analysis has surfaced as a method for analysis Twitter data. In this paper, we collected a Kaggle dataset with tweets. It contains three variants of tweets: neutral, positive, negative. First, we used NLP methods to clean the text data. Later, we applied LSTM techniques for classifying tweets in three different ways: negative sentimental analysis. As we didn't want the neutral so we dropped the neutral, and only considered the positive and negative sentiment. We achieved a good accuracy for the classification of positive and negative tweets.

Keywords: Deep Learning, Sentiment Analysis, text, LSTM, BERT, NLP.

Paper ID: ICRICEIT-23-083

Student Performance Prediction using Decision Trees

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ABSTRACT

Predicting academic performance is an important task for the students in university, college, and school, etc. Machine Learning is a field of computer science that makes the computer to learn itself without any help of external programs. The dataset used in this project is stored in a cloud server and accessed using queries as and when required. There are two approaches for machine learning techniques one is supervised learning and the other one is unsupervised learning. In unsupervised learning, K-means clustering are being used and in supervised, ensemble techniques like Random Forest and XGBoost algorithm are implemented. Nowadays evaluating the student performance of any organization is going to play a vital role to train the students. All of the above algorithms were combined and used for student evaluation and a possible suggestion to the student is provided to improve their career.

Keywords: K- Means, XGBoost, Grade, Performance.

Paper ID: ICRICEIT-23-084

Real-Time Voice Conversion with Low Latency on the CPU

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ABSTRACT

In order to accomplish real-time any-to-one voice conversion, we modify the topologies of previously developed neural networks for audio modification and synthesis. With a bitrate of 16kHz and a latency of less than 20ms, our resultant LLVC (Low-latency Low resource Voice Conversion) model is roughly 2.8 times faster than real-time on a consumer CPU. LLVC uses both a generative adversarial architecture as well as knowledge distillation in order to accomplish this performance. To the best of our knowledge, LLVC is the only open-source voice conversion model that simultaneously achieves the lowest latency and resource use. All of our data, code, and pre-trained model weights are freely available on GitHub.

Keywords: Voice conversion, Streaming, Low-latency, Model distillation, Open-source.

Paper ID: ICRICEIT-23-085

Android Application for Medicine Donation and Doctor Consultation

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ABSTRACT

To meet the increasing demand for improvements in the health care facilities & services users can utilize the power of internet technology & its wide network, by which people can help each other with just one click from their phone. The Medicine Donation system proposed here aims at providing an online platform for donating medicines or unused medicines to needy people. Users can register themselves on this system by submitting their necessary details. Once registered the users can donate the medicines by providing accurate medicine details to NGO's. The system will maintain a record of donated & available medicines. The users can raise a request to donate or avail the medicines. The application must be like user can donate the unused medicine to NGO. That NGO can help needy people. Many poor people who do not afford to buy their own medicines, with help of this application people can get the treatment and medicines to cure the respective diseases, the unused medicine will be utilized. This application also includes the doctor suggestions and prescriptions for the patients.

Keywords: NGO, Android Application, Donation, Medicine, Doctor Suggestions.

Paper ID: ICRICEIT-23-086

Design & Implementation of Secure QR Payment System using Visual Cryptography

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ABSTRACT

Design and implementation of a secure link sharing system based on QR codes. QR codes have been extensively used in recent years since they speed up the link sharing process and provide users with ultimate convenience. However, as convenient as they may sound, QR-based online systems are vulnerable to different types of attacks. Therefore, link sharing needs to be secure enough to protect the integrity and confidentiality of every process. Moreover, the link sharing system must provide authenticity for both the sender and receiver of each transaction. The security of the proposed QR-based system is provided using visual cryptography. The proposed system consists of a web application that implements visual cryptography. The application provides a simple and user-friendly interface for to share links through QR Code.

Keywords: Cryptography, QR code, Encryption, Decryption, Authentication.

Paper ID: ICRICEIT-23-087

Classification of Poetry Text into the Emotional States using Deep Learning

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ABSTRACT

The classification of emotional states from poetry or formal text has received less attention by the experts of computational intelligence in recent times as compared to informal textual content like SMS, email, chat, and online user reviews. In this study, an emotional state classification system for poetry text is proposed using the latest and cutting edge technology called Deep Learning. For this purpose, an attention-based C-BiLSTM model is implemented on the poetry corpus. The proposed approach classifies the text of poetry into different emotional states like love, joy, hope, sadness, and anger, etc. Different experiments are conducted to evaluate the efficiency of the proposed system as compared to other state-of-art methods as well as Machine Learning and deep learning methods. Experimental results depict that the proposed model outperformed the baselines studies with 88% accuracy. Furthermore, the analysis of the statistical experiment also validates the performance of the proposed approach.

Keywords: Deep Learning, Bidirectional Long & Short-Term Memory, Machine Learning.

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Paper ID: ICRICEIT-23-088

Early Detection of Parkinson's Disease using Adaptive Boosting

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ABSTRACT

Parkinson's disease (PD) is considered a malison for mankind for several decades. Its detection with the help of an automated system is a subject undergoing intense study. This entails a need for incorporating a machine learning model for the early detection of PD. For discovering a full proof model, the cardinal prerequisite is to study the existing computational intelligent techniques in the field of research used for PD detection. Many existing models focused on singular modality. In the proposed system, multiple modalities will be developed with major symptoms such as tremor at rest, bradykinesia, rigidity, and voice impairment using Adaptive Boosting (AB) algorithm.

Keywords: Parkinson's disease, Adaptive Boosting.

Paper ID: ICRICEIT-23-089

Loan Approval Prediction using Machine Learning

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ABSTRACT

The goal of this project is to predict a Machine Learning based Loan Application Prediction on Dream Housing Finance Company. They have a presence across all urban, semi urban and rural areas. The customer first applies for a home loan and after that, the company validates the customer eligibility for the loan. The company wants to automate the loan eligibility process based on customer detail provided while filling out online application forms. These details are Gender, Marital Status, Education, and number of Dependents, Income, Loan Amount, Credit History, and others. To automate this process, they have provided a dataset to identify the customer segments that are eligible for loan amounts so that they can specifically target these customers. In this we are using decision tree algorithm to implement this.

Keywords: Machine learning, Loan, Decision tree.

Paper ID: ICRICEIT-23-090

Gesture-Controlled Virtual Mouse using Media Pipe

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ABSTRACT

A Human-Computer Interaction software that enables the user to interact with the computer just by the means of Hand-Gestures. The proposed system uses Machine Learning based Packages like Media Pipe in which a model named "Single Shot Detector" in the package has trained to detect the desired objects from the camera stream provided by OpenCV, It captures the hand gestures and the program triggers specific mouse function accordingly. This offers the user to carry multiple Mouse functions and also to access a few System level controls, It allows us for "Left, Right, and Double Click functions", "Scrolling", "Cursor Navigation", "Drag and Drop", "Selection", "Volume Up", "Volume Down", "Brightness Up", and "Brightness Down". It can also be used in times of pandemics, and few conditional use cases where we don't have an option to hold a mouse such as in presentations while wearing Virtual Reality Headsets, etc. In this paper, we had proposed a revolutionary model that let the users to control their machines without any physical (external).

Keywords: Machine Learning, Open CV, HCI.

Paper ID: ICRICEIT-23-091

Harmonizing Offline Reinforcement Learning with Language Models Analysis of Human Responses

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ABSTRACT

Learning from human preferences is vital for language models (LMs) to successfully cater to human wants and social values. Using human feedback to motivate compliance with instructions, previous studies have made significant improvement. Proximal Policy Optimization (PPO) and other online RL methods are heavily relied upon in these methods, although they have shown to be unstable and difficult to tune for language models. The complexity involved in implementing a distributed system for PPO also reduces the effectiveness of distributed training on a broad scale. To align LMs without engaging with RL settings, we offer an offline method called reinforcement learning from human feedback (RLHF). To better align language models with user preferences, we investigate the use of maximum likelihood estimation (MLE) with filtering, reward-weighted regression (RWR), and Decision Transform (DT). Our methods use a loss function analogous to supervised fine tuning to guarantee more consistent model training than PPO while making do with a minimalist machine learning system (MLSys) and significantly less computational resources (by about 12.3%). The experimental data show that DT alignment performs better than PPO and other Offline RLHF techniques.

Keywords: Human Preferences, Language Models, RLHF, MLSys.

Paper ID: ICRICEIT-23-092

Survey on IoT using Big Data

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ABSTRACT

The Internet of Things (IoT) is rapidly transforming business strategies and disrupting markets. To collect and share data billions of physical devices around the worlds are connected to the internet. Integration of different technologies is the main factor in IOT. Without requiring human-to-human or human-to-system interaction they have the ability to send the information over a network interconnecting physical and virtual things. Internet of Things connected devices that include sensors, actuators, services and other internet connected objects to provide effective way of learning and interaction. In this paper explaining about IoT architecture, technologies, applications and challenges in future with the help of big data.

Keywords: Distributed Computing Internet of Things, Sensors, Data collection, Security, Privacy, Secure multi-party computation.

Paper ID: ICRICEIT-23-093

Detection of Online Employment Scam Through Fake Jobs Using Random Forest Classifier

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ABSTRACT

To prevent fraudulent publishing on the Internet, an automated tool using classification techniques based on machine learning. Various classifiers are used to verify fraudulent web-based messages and the results of these classifiers are compared to identify the best job scam detection model. It helps detect fake job messages from a huge number of seats. Two major classifiers, simple and combined, are taken into consideration for post-detection of fraudulent work. However, experimental results indicate that the ensemble graders are the best classification for detecting scams on unique graders.

Keywords: Fake Job, Online Recruitment, Machine Learning, Ensemble Approach.

Paper ID: ICRICEIT-23-094

Broadcasting Heterogeneous Data in Mobile Computing Environment

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ABSTRACT

In mobile communication, data broadcasting plays an important role, where the server continuously broadcasts the data and the mobile clients access the data required by them. While these clients access the required data it is necessary that the battery power is conserved and the bandwidth is efficiently utilized. Keeping in view of the above two issues (battery power and bandwidth) the server has to schedule the data. In the existing algorithms, it is assumed that data pages size are fixed and devised the server broadcasting algorithms, but in practice the data pages sizes are variable. For example, the page size of the stock market value of any company may vary with that of the page size of cricket score. In order to utilize the bandwidth and energy efficiently for wireless information dissemination, it is necessary to have efficient scheduling algorithm which can improve the system performance in terms of database size and client requests. However, the scheduling algorithm should be made available to the hybrid push-pull environments for applications with varying data size requests. So, a new algorithm is proposed which minimizes or reduces the access time of the mobile clients by handling disseminating of data items with varied size. We have implemented and compared the proposed algorithm with the existing scheduling algorithms and show by analysis that the proposed algorithm achieves the optimal system performance and outperforms existing algorithms under various scenarios.

Keywords: Access time, Data dissemination, Varied data item size.

Paper ID: ICRICEIT-23-095

Artificial Intelligence Based System for Finding Accuracy of Spot on the Lung by Scar Tissue

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ABSTRACT

Early detection of lung cancer is one way to improve outcomes. improving the detection of nodules on chest CT scans is important. previous artificial intelligence (AI) modules show rapid advantages, which improves the performance of detecting lung nodules in some datasets. However, they have a high false-positive (FP) rate. its effectiveness in clinical practice has not yet been fully proven. We aimed to use AI assistance in CT scans to decrease FP. CT images of 60 patients were obtained. five senior doctors who were blinded to these cases participated in this study for the detection of lung nodules. two doctors performed manual detection and labeling of lung nodules without AI assistance. another three doctors used AI assistance to detect and label lung nodules before manual interpretation. The AI program is based on a deep learning framework. Detection of lung nodules is important for lung cancer treatment. When facing a large number of CT scans, error-prone nodules are a great challenge for doctors. The AI-assisted program improved the performance of detecting lung nodules, especially for scar tissue.

Keywords: Artificial Intelligence, Scar Tissue, CT images.

Paper ID: ICRICEIT-23-096

An Intelligence Traffic Monitoring System

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ABSTRACT

The most important challenge to sustainable mobility is persistent congestions of differing strength and duration in the dense transport networks. The standard Adaptive Traffic Signal Control cannot properly address this kind of congestion. Deep learning-based mechanisms have proved their significance to anticipate in adjective outcomes to improve the decision making on the predictions of traffic length. The deep learning models have long been used in many application domains which needed the identification and prioritization of adverse factors for a simplifying human life. Several methods are being popularly used to handle real time problems occurring from traffic congestion. This study demonstrates the capability of DL models to overcome the traffic congestion by simply allowing the vehicles through a signal depending on the length of vehicles. Our proposed method integrates a numeral of approach, intended to advance the cooperativeness of the explore operation. In this work, we develop the application to regulate the traffic by releasing better signal at desired time intervals.

Keywords: Traffic, YOLO, Deep Learning.

Paper ID: ICRICEIT-23-097

An Improved Design and Implementation of IoT Based Road Accident Avoidance System for Motorcycles

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ABSTRACT

In this project, designed and implemented effective and technological way of smart monitoring to avoid acciden1s using IoT. Arduino microcontrollers are used to control the entire system. Sharp IR sensor detects the head of the motorcyclist within the range of 10-80 cm. In order to enhance more safety on motorcycle especially during night times, detecting and implementing a couple of parameters like tire pressure malfunction, fuel exact status like its availability in quantity informa1ion and high speed notifications on display, in order to send above safely information, Wi-Fi Module is used for sending text message notification to family members of Bike rider when in ride.

Keywords: Helme1 Detection, Speed Detection, Fuel Detection, Pressure Detection, Buzzer, Notifica1ion, LCD display, Wi-Fi ESP 8266, Arduino.

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Paper ID: ICRICEIT-23-098

Wine Quality Prediction using Machine Learning

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ABSTRACT

The quality of a wine is important for the consumers as well as the wine industry. Nowadays, machine learning models are important tools to replace human tasks. There are several features to predict the wine quality but all methods are not preferable. So, our thesis work is focusing on what wine features are important to get the promising result. We will implement by using three algorithms namely Support Vector Machine (SVM), Random Forest Classifier (RFC), and Decision Tree. This project proposes solutions for a better quality of wine with accurate results. The proposed wine quality prediction was done using a Machine Learning Support Vector Machine algorithm. This improved wine quality approach was able to recognize quality of wine with high accuracy level.

Keywords: Wine Quality, Anaconda tool, Display output.

Paper ID: ICRICEIT-23-099

IoT Based Low-Cost Fire Detection Alarm System for Safety of Buildings

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ABSTRACT

IoT (Internet of Things) is dominating all over the world for developing technology. It is another information industry following the computer, internet, and mobile connection. In modern society, we must ensure security for leading a comfortable life. Nowadays, security has been affected by different types of matters. Fire and smoke incidents are considered among them. At present, there are many undesirable accidents from Fire and smoke incidents. One way to prevent accidents involving Fire and smoke incidents detection is to affix a Fire and smoke incident detection device at adequate places. Indeed, when the Fire and smoke incidents occurs, then the temperature can be increased naturally. Our proposed work, a simple system using low-cost devices, has been designed to send a phone call, notification to the user via the GSM module in case of any Fire and smoke incidents. It also sends data to the alarm, alerting the users and sending a graphical alert to the server via NodeMCU. This proposed work will contribute if Fire and smoke incidents occur at home, office, shopping malls or in the industry, then people can take the necessary precaution in advance.

Keywords: IOT (Internet of things), low cost, Alarm system, fire and smoke, phone call, water sprinkler.

Paper ID: ICRICEIT-23-100

Weapon Detection using Computer Vision & Artificial Intelligence for Smart Surveillance System

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ABSTRACT

Now-a-days, many cases of crimes are reported in public places using different types of weapons such as firearms, swords, cutters, etc. To monitor and minimize such types of crimes, CCTV cameras are installed in public places. Generally, the video footages recorded through these cameras are monitored by security staff. Success and failure of detecting crime depends on the attention of operator. It is not always possible for a person to pay attention on all the video feeds on a single screen recorded through multiple video cameras. We need a system that can automatically detect these illegal activities. This work focuses on providing a secure place using CCTV footage as a source to detect harmful weapons by applying the state of the art open source deep learning algorithms. No standard dataset was available for real-time scenario. This paper proposes own dataset by making weapon photos from our own camera, manually collected images from internet, extracted data from YouTube CCTV videos etc., Computer vision and Artificial Intelligence methods are used to detect and classify weapon accurately with the goal to reduce crimes and increase safety and security.

Keywords: AI, CCTV, Computer Vision.

Paper ID: ICRICEIT-23-101

Secure and Disseminate Things for Poor

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ABSTRACT

This investigate looks at the impact of gift collection strategies on the sums of gift, centering on gifts for the cause and overhead. This inquire about looks at the impacts of the three gift collection strategies (allotment, cause-first expansion, and overhead-first expansion) that shift in terms of the strategy through which the gift sum is chosen. The comes about of three observational considers demonstrate that the gift collection strategy influences the sums given for the cause and overhead, in expansion to the entire gift sum. Ponder 1 appears that benefactors tend to give more for the cause when the collection strategy inquires them toad an additional sum for overhead to the sum given for the cause (i.e., cause-first expansion) than when the collection strategy inquires benefactors to distribute their total donation sums to the cause and overhead (i.e., assignment), which too influences the total gift sum. Considers 2 and 3 test the impacts of the gift collection order by comparing between the cause-first and the overhead-first addition methods. Comes about appear that benefactors tend to give more to the cause and overhead when the gift sum for overhead is inquired to begin with (i.e., overhead-first) than when the gift sum for the cause is inquired to begin with (i.e., cause-first). Moreover, in all three studies, donors' fulfilment with the gift isn't influenced by the collection strategies.

Keywords: Choice architecture, Donation, Nudging, Overhead.

Paper ID: ICRICEIT-23-102

Activity for a Planting Trust: Greener Future

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ABSTRACT

"Planting-Hope" is an ultimate online destination for an exquisite collection of vibrant and diverse plants. Our website offers a seamless platform where plant enthusiasts, gardeners, and nature lovers can explore, purchase, and nurture a wide range of plants from the comfort of their homes. In our application, we believe that every living space deserves a touch of nature's beauty. With our carefully curated selection, we provide an extensive variety of indoor and outdoor plants, including flowering plants, and much more. Whether you're a seasoned gardener or a beginner, we have the perfect plant to suit your style, preferences, and skill level. Our user-friendly interface ensures a delightful browsing experience, allowing you to effortlessly navigate through our extensive catalog.

Keywords: Planting, Nurturing, Sustainability, Environment.

Paper ID: ICRICEIT-23-103

Recycling-Making Waste Texture Profitable

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ABSTRACT

Reusing is the method of changing over squander materials that would ordinarily be tossed absent, into unused materials and objects. Reusing squander decreases the sum of hurtful materials delivered and diminishes vitality utilization, subsequently benefitting the environment. Not all materials can be reused, but there are bounty of materials that can and ought to be reused. Recyclable materials incorporate Plastic, Paper, Cardboard, Cans, Batteries, Glass, Dress, Hardware, Wood, Metal. Reusing moderates assets - when we reuse our squander, it is turned into modern things! This means that we do not have to use up increasingly normal assets making modern items. Instep, ready to utilize ancient reused materials to make modern items. A part of water bottles are reused, and you'll be able indeed get note pads made out of ancient tires!. Diminish. Reuse. Reuse. We see the symbol. We listen the tagline all over. However, as it were 9% of plastics get reused and the rest goes to landfills, seas, and dumpsites. As a society, we are falling flat appallingly at reusing and there are a number of reasons for this disappointment. To guarantee that reusing is fruitful, we require frameworks alter. At the exceptionally slightest, shoppers have to be build compelling reusing propensities, companies must diminish plastic generation and take responsibility for their activities, and governments ought to charge companies producing plastic, and force bans on certain sorts of single-use plastics. Whereas there has been progress, usually not continuously as basic because it sounds. Nowadays, as it were 9% of plastics get reused and the rest goes to landfills, seas, and dumpsites. Perused on to memorize why reusing rates are so moo. In the event that you're uncertain approximately whether you'll reuse something or not, there's as a rule data on the bundling, collecting, reusing and reusing.

Keywords: Collection of e-waste material, shredding, sorting of e-waste, recycling the sorted material.

Paper ID: ICRICEIT-23-104

Mindfulness of Child Trafficking

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ABSTRACT

India incorporates an exceptionally tall volume of child trafficking. As numerous as one child vanishes each eight minutes, agreeing to the National Wrongdoing Records Bureau. In a few cases, children are taken from their homes to be bought and sold within the showcase. In other cases, children are deceived into the hands of traffickers by being displayed an opportunity for a work, when in reality, upon entry they gotten to be oppressed. In India, there are numerous children trafficked for different reasons such as work, asking and sexual abuse. Since of the nature of this wrongdoing; it is difficult to track and due to the destitute requirement of laws, it is troublesome to anticipate. Due to the nature of this wrongdoing, it is only possible to have gauges of figures with respect to the issue. India may be a prime range for child trafficking to happen, as numerous of those trafficked are from, travel through or predetermined to go to India. In spite of the fact that most of the trafficking happens inside the nation, there's a critical number of children trafficked from Nepal and Bangladesh. There are numerous distinctive causes that lead to child trafficking, with the essential reasons being destitution, frail law authorization, and a need of great quality open instruction. The traffickers that take advantage of children can be from another region in India, or may indeed know the child by and by.

Keywords: Child trafficking, National Crime Records Bureau, Children, India, Quality Public Education.

Paper ID: ICRICEIT-23-105

Sparing Plants from Infection

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ABSTRACT

Plant infections posture noteworthy dangers to worldwide nourishment security and environment soundness. The expanding event and spread of these maladies require the execution of compelling techniques to secure plants and protect rural efficiency as Plant wellbeing administration. This includes examining and creating inventive strategies to oversee bugs and illnesses that harm crops, timberlands, and gardens. This theoretical points to supply an diagram of different approaches and advances that can be utilized to spare plants from maladies. In conclusion, raising mindfulness and advancing instruction among agriculturists, agrarian experts, and the common open are imperative for compelling malady administration. Information dispersal, preparing programs, and data campaigns can engage people to recognize and react suitably to plant maladies, cultivating a proactive and careful approach. In conclusion, defending plants from infections requires a multifaceted approach including early location, social hones, natural control, safe assortments, accuracy horticulture, and instruction. Actualizing coordinates techniques will not as it were relieve the effect of plant infections but moreover contribute to economical farming, nourishment security, and the conservation of our biological systems.

Keywords: Ecosystem stability, Plant disease prevention, Plant health management, Sustainable agriculture.

Paper ID: ICRICEIT-23-106

To Grow by Accepting, Understanding and Loving Autism

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ABSTRACT

The identification of autism disorder is a crucial and difficult step in the process of potential suspects from an occurrence. The first step in conducting investigations is to gather a variety of social skills, repetitive behaviours, speech and nonverbal communication occurrence. The examination of proved to be of great use in the creation of medical issues such as gastrointestinal (GI) disorders, seizures or sleep disorders, as well as mental health challenges such as anxiety, depression and attention issues. Markings play a significant role in the decision-making process while trying to identify things found at an anxiety, depression and attention. The morphology factor and cumulative probability feature matching are both used to recover the semantic item from the picture. Several factors may influence the development of autism, and it is often accompanied by sensory sensitivities and medical issues such as (GI).

Keywords: Anomaly detection, Image processing, security systems, gastrointestinal.

Paper ID: ICRICEIT-23-107

User Location-based Services with MongoDB

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ABSTRACT

Location based Services offer many advantages to the mobile users to retrieve the information about their current location and process that data to get more useful information near to their location. With the help of Mongodb and through Web Services using GPRS, Location based Services can be implemented on Android based smart phones to provide these value-added services: advising clients of current traffic conditions, providing routing information, helping them find nearby hotels. In this paper, we propose the implementation of Location based services through Google Web Services and Walk Score Transit APIs on Android to give multiple services to the user based on their Location.

Keywords: Location based services, MongoDB, web services, A-GPS.

Paper ID: ICRICEIT-23-108

Graphene Based Wearable Antenna with different dielectric Materials for 2.4 GHz Applications

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ABSTRACT

In this manuscript a warble patch antenna has been designed for 2.4 GHz applications. A rectangular shaped antenna with dimensions 29 mm × 39 mm × 0.035 mm has been wrapped on a dielectric substrate to make a wearable antenna. The antenna has been designed for 2.4 GHz application like WLAN, IoT and other applications. For the patch the graphene material has been implemented for its high conductivity and flexibility. A curved substrate has been taken into consideration. Different dielectric materials like FR4 Epoxy, Polyamide, Roger TMM4 and Silicon dioxide have been considered as substrate material. For patch copper and graphene have been considered. After comparing the resonant frequency and return loss the best combination of materials have been determined. Then the other parameters like VSWR, Antenna Gain and Directivity have been determined.

Keywords: Wearable antenna, VSWR, Antenna Gain, Directivity, FR4 Epoxy.

Paper ID: ICRICEIT-23-109

Leftover Food Donation Application using Android

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ABSTRACT

Wasting food is a common problem in our society. Food waste management is crucial since it can improve our environmental and economic sustainability. We have identified the use of mobile technology to reduce food waste management and built an android mobile application that allows restaurants to donate and share their foods and leftovers with people in need. Prevent food waste by creating an interactive multi-channel system that will allow people with surplus excess foods from Weddings, Parties, and other events, to contact 'No Food Waste' to donate food, as well as for hungry individuals and institutions requiring food supplies to request help from 'No Food Waste'. This system will create a common collaboration portal for hotels / restaurants and charities, charity can directly contact restaurants who have food remaining and report generation which will show how much food is donated by which restaurant and providing reward points for them.

Keywords: Food wastage, Food Donation, NGO, Donor, Receiver.

Paper ID: ICRICEIT-23-110

Image Colourization with OpenCV

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ABSTRACT

Manual colorization of black and white images is a laborious task and inefficient. It has been attempted using Photoshop editing, but it proves to be difficult as it requires extensive research and a picture can take up to one month to colorize. A pragmatic approach to the task is to implement sophisticated image colorization techniques. The literature on image colorization has been an area of interest in the last decade, as it stands at the confluence of two arcane disciplines, digital image processing and deep learning. Efforts have been made to use the ever-increasing accessibility of end-to-end deep learning models and leverage the benefits of transfer learning. Image features can be automatically extracted from the training data using deep learning models such as Convolutional Neural Networks. This can be expedited by human intervention and by using recently developed Generative Adversarial Networks. We implement image colorization using various CNN and GAN models while leveraging pre-trained models for better feature extraction and compare the performance of these models.

Keywords: Machine Learning, Python, B&W image to Colour Image, CNN, OpenCV.

Paper ID: ICRICEIT-23-111

Online Voting System using DJANGO

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ABSTRACT

In particular, this e-voting system project in Python Django focuses mainly on dealing with online voting, and voter-candidate information. Also, the system displays selective overall data using graphical representations. In addition, the system allows managing voters' records. Evidently, this project is divided into two categories: Voter, and Admin Panel. In an overview of this web application, a voter can simply register into the system. Initially, the system only allows a voter to cast vote and view his/her ballot. In fact, the system restricts users after casting a vote. This means, that one user can only cast vote once, but he/she can select up to 20 candidates. Besides, a voter can only list out his/her ballot which displays the name of voted candidates. We included some of the modules like voter's panel, cast votes, select multiple candidates, view personal ballot, voter management, setup positions, list vote details, votes tally, download vote results, view ballot position, and update election title.

Keywords: Voting System, Voter Candidate, Voter Management, Setup Positions, List Vote Details, Votes Tally, Download Vote Results.

Paper ID: ICRICEIT-23-112

Face Recognition Login System

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ABSTRACT

With rapid growth in the application of AI, Access Control Systems are walking in a new technology lane. Powered by deep learning technologies or cognitive analytics, login pages can implement more secure, efficient, and easy to use authentication systems. Face Detection and Recognition is emerging as preferred solution to enable secure verification and authentication in login systems. Moreover, Facial Recognition has been applied in many fields from unlocking smartphones through built in camera of smartphones to identification of suspected people by the law enforcement organizations. The goal of this research paper is to provide an easier authentication system using Face Detection and Recognition instead of using usernames and passwords. This paper mainly analyzes the application of Face detection systems to authenticate and login users It presents the prototype system implemented with the usage of a Flask server, requesting face recognition services from Amazon's Recognition. The prototype receives images of the user instead of his username and password. The received image is analyzed by AWS's Face recognition tools and the ID of the face is sent as a response along with the confidence level of the algorithm used to analyze the face.

Keywords: Access Control, Face Detection, Verification, Authentication, Identification.

Paper ID: ICRICEIT-23-113

Employee Attrition Prediction

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ABSTRACT

Every organization has its own productivity and strength which stands of the legs of the employees. Keeping regular employee is a great challenge for all organization in the competitive world. Employee Attrition is one of the biggest business problems in HR Analytics. Companies invest a lot in the training of the employees keeping in mind the returns they would provide to the company in the future. If an employee leaves the company, it is the loss of opportunity cost to the company. These study interpreters the employee's attrition rate through the related attributes like Job Role, overtime, job level affects the attrition largely. The paper contains the survey of various classification algorithms like logistic regression, LDA, SVM, KNN, Random Forests to predict the probability of attrition of any new employee. As a result, training balanced dataset with Random Forest achieved the second highest performance, with 0.269 F1-score but has achieved the highest accuracy with the algorithms we have used.

Keywords: Employee attrition, Support vector machine, random forest, K nearest neighbor, Feature selection, Attrition Rate, HR, Classifier, Pre-processing, Employment Features.

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Real-Time Chat Application with MongoDB

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ABSTRACT

The real-time chat application with MongoDB abstract aims to create a chat application that allows users to communicate with each other in real-time. The application is built using MongoDB as the database to store user data and messages. The chat application uses web sockets to enable real-time communication between users, allowing them to send and receive messages instantly. The application also includes features like user authentication and authorization, message encryption, and message search. The use of MongoDB as the database allows for easy scalability and high availability, making the application suitable for use by small and large organizations alike. Overall, this real-time chat application with MongoDB provides a reliable and secure platform for users to communicate with each other in real-time.

Keywords: Mongo dB, Nodejs, User authentication and authorization, Message encryption, Web Sockets.

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