# Proceedings

INTERNATIONAL CONFERENCE ON EMERGING TRENDS IN ARTIFICIAL INTELLIGENCE AND BLOCK CHAIN TECHNOLOGY





DEPARTMENT OF COMPUTER SCIENCE AND ENGINNERING SURYA GROUP OF INSTITUTIONS

School of Enginnering and Technology G.S.T Road, Surya Nagar, Vikiravandi – 605 652, Villupuram Dt. Tamil Nadu, India.



# **PROCEEDINGS OF**

# INTERNATIONAL CONFERENCE ON EMERGING TRENDS IN ARTIFICIAL INTELLIGENCE AND BLOCK CHAIN TECHNOLOGY

# **INCETAIBCT-2023**

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(INCETAIBCT-2023)



# CONTENT

SL. NO	PAPER ID	TITLE	AUTHOR NAME	PAGE NO
1	101	Data Leakage Avoidance in Cloud Storage Using Watermarking and Re-Encryption	K. Deepika V. Parvathi J. Seetha S. Subhalakshmi G. Tamizhselvi	1
2	102	Stock Market Hunch	P. Vijayasarathy S. L.Vijayendran G. Soundhar G. Ram Moorthy V. K. Parameshwaran	2
3	103	Elucidation of Text to Image Using Deep Learning Models Developed by OpenAI (DALL-E2)	R. Sivaranjini S. Narmatha A. Shanthini N. Sumaiya Farveen U. Ummul Nasiha	3
4	104	Medical Assistant Application	Reikha. C Mohamed Zakir Husain. N Tamil Selvan. S Umar Farook. J Vijay. M	4
5	105	Classifying and Spotting the Covid 19 Using Various Deep Learning Algorithms	B. Nithya E. Elakiya	5
6	107	An Efficient Helmet Detection for MVD Using Deep Learning	Jainullabdeen. A Sundharam. S Ellappan. R Poovarasan. S	6
7	108	Detect and Prevent Counterfeit Product for Online and Offline Sales using Block Chain Technology	B. Nithya V. Sabeena D. Nathiya M. Saranya	7
8	109	Resolving Swahili Phishing Attacks for Mobile Money Users	Subha. K Priya. V Santhiya. V Vijayalakshmi. D	8
9	110	IOT Based Water Quality Monitoring System Using PH Sensor	Praveena. T Aswathi. L Narmatha. S Vinodhini. A	9





SL. NO	PAPER ID	TITLE	AUTHOR NAME	PAGE NO
10	111	Dynamic Traffic Control by Using Deep Reinforcement Learning	Ganesh. P Thirumalai Vassan. R Bibin. B Krishna Prasadh. S	10
11	112	Dynamic Identification of Spam Words, Phishing URLs, Misleading Products and Agencies and Categorization of Message System	A. Jagan K. Monisha	11
12	113	Data Efficient Resource Optimization Traffic Minimization in Mobile Network	Lakshmidevi. B Jayanthi. J Navaneetham. R Sakthi priya. G	12
13	114	College Management System	K. Gandhimathi S. Abiniya S. Priya Jency	13
14	115	Enhancing Network Security through Machine Learning Enabled SDN Predictive Analytics	N. Manojkumar A. Akilandeshwari S. Kaviyadharshini G. A. Senthil M. Madhumathi	14
15	116	Auguring the Hereditary Disease Using Machine Learning Random Forest Methodology	S. Sakthivel R. Nithiga M. Sweadha V. Sabaresan Mabel Nirmala Joseph	15
16	117	Recognizing Sarcasm Using Python	Nilavani. K Yamini. D Vasunthra. R S. Geerthik R. V. Lakshmi Priya	16
17	118	Residual Applicative Life of an Appliance and Its Prognosis on Its Lasting Life Expectancy	Akash. G Vaibhav. U Princy. F V. Sabaresan S. Geerthik	17
18	106	Suspicious Activity Prediction Using Python	A. Sowbarnika T. Praveena	18
19	119	Zero-Click Spyware Attack	A. Jagan Shankar Dayal Sharma. S Baranidharan. K Ferdinant. J	19





SL. NO	PAPER ID	TITLE	AUTHOR NAME	PAGE NO
20	120	Distributed Detection of Minimum Cuts in Wireless Multi-Hop Networks	Jainullabdeen. A Maha. V	20
21	121	ACO-Based Secure Routing In Vehicular Adhoc Networks: A Bio-Inspired Approach	K. Subha D. Keerthana	21
22	123	Fetal Monitoring System	B. Lakshmi Devi S. Indira	22
23	124	Multi Factor Data Analysis for Effective Crop Cultivation System using Machine Learning & Big Data Analysis	A. Jagan P. Arun Kumar	23
24	125	Multi Attacks in Cloud Environment using Big Data Analysis to Ensure Cyber Security	K. Subha M. Mohana Priya	24
25	126	Real-time Genetic Sequence Verification with Disease Mapping and Polymorphism	Indhumathi M. Archana	25
26	129	Fake Product Review Monitoring Application using Python	Vanathi. P Nithiyakalyani. G Snehasri. S. V S. Geerthik M. Madhumathi	26
27	130	Prediction of Chronic Obstructive Pulmonary Disease (COPD) Using Classification Algorithm	Abinaya. J Vidhya. A	27
28	131	Performance Analysis on NIDS Dataset Using Decision Tree Classifier	Monica Bharathi. K. R Vidhya. A	28
29	132	A Review on Machine Learning Styles in Computer Vision—Techniques and Future Directions	S. Agalya S. Kamalesh	29
30	128	Speak Assist - Person assistance for the visually impaired using speech recognition in NLP	S. Krishna Kumar H. Kamesh S. Yuvasri Mabel Nirmala Joseph R. V. Lakshmi Priya	30
31	134	Prediction and Forecasting Bitcoin Price Prediction Using LSTM	K. Ramya Erick. D Praveen. G Manoj. S	31





SL. NO	PAPER ID	TITLE	AUTHOR NAME	PAGE NO
32	135	Enhanced Plant Leaf Disease Detection Using Deep Learning Techniques	R. Gopi Kothamasu Venkata Ratna Sai Jasthi Manikanta Chunduri Sai Babu Bommisetti Pardha Sai	32
33	136	Cryptocurrency Price Analysis with Artificial Intelligence	Sowmiya. S.R Peravarapu Rajesh Babu Pothuri Hanish Venkata Srimannarayana Shaik Abusayeed Vadlamudi Vamsi Krishna	33
34	137	Real-Time Identification of Medicinal Plants Species in Natural Environment Using Deep Learning	Sekar. K Hilaludeen. S Naveen. M. V Mahadevan. V	34
35	138	Prediction of Early Hospitalization with BP & HB Values By Using Effective Machine Learning Algorithms	R. Gopi Tippisetti Sravan Kumar Tanneru Surya Kalyan Chakravarthi Nadipineni Bharath Kumar	35
36	139	Prediction of Air Pollution Using Machine Learning	V. Gokulkrishnan Binkenakeerth ana Garigapatiyam ini Madalasupriya Maheshwari. M	36
37	140	Credit Card Fraud Detection Using Machine Learning	Geetha. T Prakash Reddy. A Balaji. B Sai Jagannadham Naidu. G Satish. M	37





SL. NO	PAPER ID	TITLE	AUTHOR NAME	PAGE NO
38	141	A Small Traffic Object Detection for Small Traffic Signals	Chinnadurai. S Mahendra Reddy. A Brahmaiah. K Bhargav Sai. K Praveen Kumar Reddy. K	38
39	142	License Plate Recognition Based on YOLOv8 and Tesseract OCR	P. Arjun J. Ashokkumar Gokul Raj. V Sakthi. P	39
40	143	Virtual Mouse System Based on Real Time Hand Gesture Recognition Using Deep Learning	K. Ramaya Kiruthika. M Kokulalakshmi. G Jannathbe. A Carolinpavithera. C	40
41	146	Remodeling and Simulation of Biodegradable Stent Using Solidworks	Deepika Devi Priya Israth Banu Priyadharshini	41
42	148	Privacy Preserving Voting Scheme Based on Block Chain Technology	S. Fracis Shamili K. Vignesh M. Pradeep	42
43	144	Fraudulent Banking Transaction Classification Using Deep Learning Algorithm (MLP Algorithm)	Sathya. J Sellapavithra. S Rathna. R	43
44	127	Secure Data Transmission on cloud computing using AES and ECC Algorithm	P. Ganesh T. Nancy Rani	44
45	151	Automated Image-based Detection of Plant Diseases using Convolutional Neural Networks (CNNs) and K Means Clustering Techniques	M. Thenmozhi G. M. Kadhar Nawaz	45
46	152	Secure Intelligence through Dispersed Network in Block Chain	Saranraj. P Naveen. N Sivaraman. E MS. Mabel Nirmala Joseph	46
47	153	Smart Facial Features for Real-Time Operator Sleepiness Prediction Using Hybrid Convolutional Neural Network in Computer Vision	S. Pooja V. Subash G. Mahesh G. A. Senthil	47





# Data Leakage Avoidance in Cloud Storage Using Watermarking and Re-Encryption

### <sup>1</sup>K. Deepika, <sup>2</sup>V. Parvathi, <sup>3</sup>J. Seetha, <sup>4</sup>S. Subhalakshmi <sup>5</sup>G. Tamizhselvi

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#### Paper ID: 101

Multimedia data sharing is increasingly becoming an essential part of the daily life for end users to access different systems, services, and applications. Data disclosure frequently occurs in real-world cloud storage services. Authentication and copyright protection of multimedia contents has always been a concern in secure data transfer media. The problem has become more critical with the increasing use of the Internet and digital technologies. However, making the protection of copyright is more complex and difficult. Digital watermarking came up as a solution for copyright protection problem. In proposed approach both Watermarking and Proxy Re-encryption (PRE) approach utilized for efficient multimedia content sharing. Watermarking is used to hiding the information such as hide secret information in digital media like images. Encryption techniques used to provide security to data. In encryption, the information is encoding to prevent unauthorized access and the unauthorized persons cannot read it. In proposed work, secret key can be encrypted using encryption algorithm with the help of key. Then user's private key combined with encrypted key information and can be embedded within the image using LSB (Least Significant Bit). After embedding of secret information, image can be encrypting using ECC Encryption algorithm. Finally, authorized user can extract decryption key with the help of embedded data verification process. Unauthorized or illegal access can identified, when user information does not match with embedded information. This proposed application helps to track the illegal access and avoid the content re-distribution in cloud environment.





# **Stock Market Hunch**

#### <sup>1</sup>P. Vijayasarathy, <sup>2</sup>S. L. Vijayendran, <sup>3</sup>G. Soundhar, <sup>4</sup>G. Ram Moorthy <sup>5</sup>V. K. Parameshwaran

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#### Paper ID: 102

Stock price Hunch by using Machine Learning. Machine learning has significant applications in stock price prediction. In this machine learning project, we will be talking about predicting the returns on stocks. This is a very complex task and has uncertainties. We will develop this project by building a dashboard using Plotly dash for stock analysis. Plotly offers open-source and enterprise products. Dash is an open-source Python, R, and Julia framework for building web-based analytic applications. Many specialized open-source Dash libraries exist that are tailored for building domain-specific Dash components and applications.





# Elucidation of Text to Image Using Deep Learning Models Developed by OpenAI (DALL-E2)

### <sup>1</sup>R. Sivaranjini, <sup>2</sup>S. Narmatha, <sup>3</sup>A. Shanthini, <sup>4</sup>N. Sumaiya Farveen <sup>5</sup>U. Ummul Nasiha

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#### Paper ID: 103

Our Project "Elucidation of Text to Image using Deep Learning by OpenAI (DALL-E 2)" which was already an existing one, we decide that this application is to be ours. So we used the API which was open source now available in public beta using that we have created our own DALL-E 2 application, DALL-E 2 can create original, realistic images and art from a text description. It can combine concepts, attributes, and styles. This application flexibility allows users to create and edit original images ranging from the artistic to the photorealistic, so users can plainly describe what they want to see. Developers can now integrate DALL-E 2 directly into their apps and products through their API. We can start building with this same technology that's what we are done.

The combination of DALL-E 2 and ChatGPT technology has enabled the creation of a text-to-image generation system that is capable of producing high-quality images based on textual prompts. By integrating the two technologies, the system is able to understand natural language descriptions and generate stem that is capable of p corresponding images with great accuracy and detail. This breakthrough in image generation opens up new possibilities in the fields of art, design, and his breakthrough in image generation opens up new possibilities e entertainment, and has the potential to revolutionize the way we interact with visual media.





# **Medical Assistant Application**

### <sup>1</sup>Reikha. C, <sup>2</sup>Mohamed Zakir Husain. N, <sup>3</sup>Tamil Selvan. S <sup>4</sup>Umar Farook. J, <sup>5</sup>Vijay. M

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#### Paper ID: 104

Some people overlook to take care of health. Because of the lack of an expert system, people are forced to submit in frequent health related problems. By analyzing the data, an application based reminder system has been developed and also appointment booking method. It is designed to assist the patient who forgets to take medicine. The proposed system consists of a web application and an android application, it also focuses on paperless prescription. It can also remind medicine duration to choose whether to refill or make an appointment for review. Patients will no longer have to worry about daily medication. We have tried to develop a system which will help patients to manage their health care properly. A doctor can fill the prescription digitally and it can be viewable by patients using their registered number.

The application will send a notification when it's time to take medicine. It can also remind medicine duration to choose whether to refill or make an appointment for review. Using Angular, this application focuses on responsive application which is used on all mobile devices and the logic was written in TypeScript. Patients will no longer have to worry about daily medication. The application will make a digital prescription always in patient record which is easy for both user Doctor and Patient for re-check previous prescription. Using this application, Patients can also register their appointment with Doctors by knowing their available slots. In this application, there is a pre-built prescription (Digital) which makes easy for doctors to provide medicine. Also this focuses on paperless prescription method. The Mobile application is used for keeping the record in medicine details and reminding the schedule of medicine.





# Classifying and Spotting the Covid 19 Using Various Deep Learning Algorithms

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#### Paper ID: 105

The new variety of epidemic virus named corona virus has emerged into our world since the year 2019. It was first originated in Wuhan which is in the city of China. Now the corona virus has spread more than 200 Countries all over the world. It causes progressive respiratory failure which leads to serious illness even causing death. The death rate has increased so it is very important to detect Covid 19 in earlier stages itself so that the Covid 19 infected person can be treated accordingly and further spread can be avoided. In order to address this issue, deep learning models came into play to detect Corona virus using computed tomography. In order to detect Covid 19 easier, the CT scans are segmented to remove the noise and then passed to classification algorithms to detect whether the person is detected with Covid19 virus or not. U-Net is the segmentation algorithm which is especially created for biomedical segmentation. The ground truth for U-Net is created using Otsu's global thresholding which produced lower PSNR value and higher MSE value during analysis when compared among other algorithms like K-Means, watershed, local thresholding. The ground truth image which is generated from Otsu's global thresholding and the original picture is given as the input to the U-Net segmentation algorithm. The intersection over the union (IOU) and the Dice coefficient value are way some metrics used for comparing the performance of Otsu and U-Net. The analysis is done in three scenarios with different training and testing ratios. All the three of our scenarios gave nearly the same accuracy. Scenario one with 80(training): 20(testing) gave the accuracy of 97.50% and the IOU and Dice coefficient for Covid and Non-Covid images are 94.22, 94.87, 97.02, 97.37. The Scenario two with 70(training): 30(testing) gave the accuracy of 97.51% and the IOU and Dice coefficient for Covid and Non-Covid are 94.42, 93.83, 97.13, 96.82. The scenario three with 70(training): 40(testing) gave an accuracy of 97.58% and the IOU and Dice coefficient for Covid and Non Covid images are 94.47, 94.00,97.15,96.91. The third scenario has a significant increase in accuracy among the other 2 scenarios. The segmented image is given as the input to the classification algorithms like Convolutional Neural Network (CNN), VGG-16, VGG -19, DenseNet-169, DenseNet201. These models are evaluated and compared between them. The CNN is created with 3 convolutional layers for extracting information, 3 pooling layers for getting important features and finally with 2 fully connected layers and it gave an accuracy of about 85.45%. The VGG-16 model which has 16 layers gave an accuracy of 88.05%. The VGG-19 gave an accuracy of 88.48%. The DenseNet169 which has 169 layers gave an accuracy of 94.74%. finally, DenseNet201 which has 201 layers gave an accuracy of about 98.78%. These algorithms are trained with 25 epochs and the learning rate is 0.001 with 32 batch sizes. The loss is calculated using Binary cross-entropy. The DenseNet-201 outperformed well than other algorithms.





# An Efficient Helmet Detection for MVD Using Deep Learning

# <sup>1</sup>Jainullabdeen. A, <sup>2</sup>Sundharam. S, <sup>3</sup>Ellappan. R, <sup>4</sup>Poovarasan. S

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#### Paper ID: 107

Bike riders have been rapidly increasing amid time in various countries. Motorbikes are favoured by citizens belonging to different classes of the society due to many reasons such as its economic value. Wearing helmets is compulsory according to the standard however the vast majority avoid it. A principal goal of the helmet is to guarantee the safety of the riders. Our research intends to make an automated system to distinguish whether a biker is wearing a helmet or not and to impose fine to defaulters as a part of law enforcement. According to our research, such a system is not currently used by the police or by any other authority. Executing the proposed framework can convey more mindfulness and need to wear a helmet at any rate with the goal that they don't get captured on camera and avoid fine.





# Detect and Prevent Counterfeit Product for Online and Offline Sales Using Block Chain Technology

## <sup>1</sup>B. Nithya, <sup>2</sup>V. Sabeena, <sup>3</sup>D. Nathiya, <sup>4</sup>M. Saranya

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#### Paper ID: 108

The product quality inspection report is the "final product" provided by the inspection and testing organization to customers. Due to the lack of effective anticounterfeiting methods, forged reports appear from time to time in the market and show an increasing trend, resulting in inferior products being replaced by good ones, disturbing the market order, seriously endangering the safety of people's lives and property, hindering the normal development of inspection and testing institutions, and becoming a pain point in the industry. According to the management requirements of inspection and detection reports, combined with the unique characteristics of Block chain technology, such as non-tampering, traceability and nonrepudiation, in order to solve the problems of centralized anticounterfeiting system and illegal merchants copy authentic commodities at low cost and with low difficulty. This paper proposes To overcome the above challenges, a ML enabled block chain-cloud-based an anti-counterfeiting system design based on the combination of block chain and KYPC. This system uses the Hyper ledger Fabric block chain development platform, Anti-counterfeiting certificates are used to prove that the commodities are genuine, encrypting the anti-counterfeiting certificate with ECC (Elliptic Curve Cryptography) public key forms cipher text, then store the cipher text in the block chain ledger. Write the SHA256 value of the anti-counterfeiting certificate and the ECC private key, which can transform from cipher text to anti-counterfeiting certificate, into the KYPC. It ensures the uniqueness and non-replicability of the anti-counterfeiting certificate of the product, greatly improves the anti-counterfeiting performance and the difficulty of counterfeiting.





# **Resolving Swahili Phishing Attacks for Mobile Money Users**

# <sup>1</sup>Subha. K, <sup>2</sup>Priya. V, <sup>3</sup>Santhiya. V, <sup>4</sup>Vijayalakshmi. D

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#### Paper ID: 109

Due to the massive adoption of mobile money in Sub-Saharan countries, the global transaction value of mobile money exceeded \$2 billion in 2021. Projections show transaction values will exceed \$3 billion by the end of 2022, and Sub-Saharan Africa contributes half of the daily transactions. SMS (Short Message Service) phishing cost corporations and individuals millions of dollars annually. Spammers use Smishing (SMS Phishing) messages to trick a mobile money user into sending electronic cash to an unintended mobile wallet. Though Smishing is an incarnation of phishing, they differ in the information available and attack strategy. As a result, detecting Smishing becomes difficult. Numerous models and techniques to detect Smishing attacks have been introduced for high-resource languages, yet few target low-resource languages such as Swahili. This study proposes a machine-learning based model to classify Swahili Smishing text messages targeting mobile money users.





# IOT Based Water Quality Monitoring System Using PH Sensor

## <sup>1</sup>Praveena. T, <sup>2</sup>Aswathi. L, <sup>3</sup>Narmatha. S, <sup>4</sup>Vinodhini. A

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#### Paper ID: 110

Water plays an important role in our day to day life, our body consists of 70% of water and the major diseases are caused due to the bad quality of water. How much ever we filter the water there might be few impurities in it, so we are using Internet of Things technologies and sensors to measure the quality of water. Internet of Things (IOT) is used in different Area of research for monitoring and collecting data on a particular project. Smart Water Quality Monitoring System is necessary nowadays due to increase in pollution and other Industrial waste which is being dumped in the water bodies, which makes water polluted even after purifying it. Around 40% of the deaths are caused due to water pollution around the world. With the help of smart water quality monitoring system we can find out if the Water is pure or impure at an affordable cost





# Dynamic Traffic Control by Using Deep Reinforcement Learning

# <sup>1</sup>Ganesh. P, <sup>2</sup>Thirumalai Vassan. R, <sup>3</sup>Bibin. B, <sup>4</sup>Krishna Prasadh. S

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#### Paper ID: 111

Traffic congestion is ceaselessly developing everywhere throughout the world and it has become a hindrance for computers. Traffic Light Control System with pre-set clocks are broadly used to invigilate and control the traffic generated at the intersections of numerous streets. A traffic light control system based on the dual targeting algorithm, which incorporates reinforcement of successful experiences in multi-agent environments, with the aim of realizing a better traffic light control system. A significant rise in the overall economic losses owing to increasing traffic congestion. The framework gives a solution for diminishing traffic in metropolitan urban areas by contemplating constant traffic situations and the reinforcement learning algorithm to improve after some time. Since the traditional traffic control framework utilizes basic convention that alternate green and red light for a fixed interval.





# Dynamic Identification of Spam Words, Phishing URLs, Misleading Products and Agencies and Categorization of Message System

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#### Paper ID: 112

Spam has become the platform of choice used by cyber-criminals to spread malicious payloads such as viruses and trojans. In this paper the problem of early detection of spam campaigns. Collaborative spam detection techniques can deal with large scale e-mail data contributed by multiple sources however, they have the well-known problem of requiring disclosure of e-mail content. Distance-preserving hashes are one of the common solutions used for preserving the privacy of e-mail content while enabling message classification for spam detection. In this Project, we Integrate Spam Filtering along with Phishing URLS detection also.





# Data Efficient Resource Optimization Traffic Minimization in Mobile Network

# <sup>1</sup>Lakshmidevi. B, <sup>2</sup>Jayanthi. J, <sup>3</sup>Navaneetham. R, <sup>4</sup>Sakthi Priya. G

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#### Paper ID: 113

In this Project we are going to reduce the overall usage of data access and will increase the overall speed and throughput of the system. This will produce the overall network resource availability into Network Traffic. In this project, we propose an efficient Crowd sensing algorithm based resource prediction scheme, called Resource Allocation, for predicting Usage. From historical data in wireless communication systems. The crowed sensing algorithm is used to divide the user into types such as primary user and secondary user.





# **College Management System**

#### <sup>1</sup>K. Gandhimathi, <sup>2</sup>S. Abiniya, <sup>3</sup>S. Priya Jency

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#### Paper ID: 114

This paper is aimed at developing an Online Intranet College Management System (CMS) that is of importance to either an educational institution or a college. The system (CMS) is an Intranet based application that can be accessed throughout the institution or a specified department. This system may be used for monitoring attendance for the college. Students as well as staffs logging in may also access or can be search any of the information regarding college. Attendance of the staff and students as well as marks of the students will be updated by staff. This system (C.M.S) is being developed for an engineering college to maintain and facilitate easy access to information. For this the users must be registered with the system after which they can access as well as modify data as per the permissions given to them. CMS is an intranet based application that aims at providing information to all the levels of management within an organization. This system can be used as a knowledge/information management system for the college. For a given student/staff (technical/Non-technical) can access the system to either upload or download some information from the database.





# Enhancing Network Security through Machine Learning Enabled SDN Predictive Analytics

### <sup>1</sup>N. Manojkumar, <sup>2</sup>A. Akilandeshwari, <sup>3</sup>S. Kaviyadharshini <sup>4</sup>G. A. Senthil, <sup>5</sup>M. Madhumathi

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#### Paper ID: 115

The continuing increase of Internet of Things (IoT) based networks have increased the need for Computer networks intrusion detection systems (IDSs). Over the last few years, IDSs for IoT networks have been increasing reliant on machine learning (ML) techniques, algorithms, and models as traditional cybersecurity approaches become less viable for IoT. IDSs that have developed and implemented using machine learning approaches are effective, and accurate in detecting networks attacks with high-performance capabilities. However, the acceptability and trust of these systems may have been hindered due to many of the ML implementations being 'black boxes' where human interpretability, transparency, explain ability, and logic in prediction outputs is significantly unavailable. The UNSW-NB15 is an IoT-based network traffic data set with classifying normal activities and malicious attack behaviors. Using this dataset, three ML classifiers: Decision Trees, Multi-Laver Perceptrons, and XGBoost, were trained. The ML classifiers and corresponding algorithm for developing a network forensic system based on network flow identifiers and features that can track suspicious activities of botnets proved to be very high-performing based on model performance accuracies. Thereafter, established Explainable AI (XAI) techniques using Scikit-Learn, LIME, ELI5, and SHAP libraries allowed for visualizations of the decision-making frameworks for the three classifiers to increase explain ability in classification prediction. The results determined XAI is both feasible and viable as cybersecurity experts and professionals have much to gain with the implementation of traditional ML systems paired with Explainable AI (XAI) techniques.





# Auguring the Hereditary Disease Using Machine Learning Random Forest Methodology

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#### Paper ID: 116

In recent years, there has been growing interest in the use of gene expression programming (GEP) for data mining and optimization problems. GEP is a type of genetic programming that uses a combination of linear and non-linear functions to create models that can accurately predict complex relationships between variables. One area where GEP has shown promise is in the mining of implicit equations from data. Implicit equations are equations that are not explicitly defined, but instead, are derived from the relationships between variables. GEP can be used to identify these implicit equations by analyzing the input and output data and iteratively generating and testing different equation. The process of mining implicit equations from data using GEP involves several steps. First, the input and output data are preprocessed and normalized to ensure consistency and accuracy. Next, a population of candidate equations is generated using GEP and each equation is evaluated based on its fitness to the data. The most promising equations are selected for further refinement and testing, and the process is repeated until a suitable equation is found. Once an equation is identified, it can be used to make predictions about new data and provide insight into the underlying relationships between variables. Overall, the use of GEP for mining implicit equations from data shows great promise for a range of applications, including data analysis, prediction, and optimization. However, further research is needed to fully explore the potential of this approach and refine the techniques used for equation generation and evaluation.





# **Recognizing Sarcasm Using Python**

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#### Paper ID: 117

The ability to recognize sarcasm is essential for effective communication between humans, but it poses a significant challenge. Recognizing sarcasm using Python involves using Natural Language Processing (NLP) techniques to analyze the text and identify the presence of sarcasm. The process typically involves pre-processing the text to remove noise, tokenizing the text into words or phrases, and then using various NLP techniques such as sentiment analysis, dependency parsing, and machine learning algorithms to determine whether the text is sarcastic or not. Some popular Python libraries that can be used for sarcasm detection include NLTK, TextBlob, and Scikit-Learn. The accuracy of sarcasm detection can be improved by using contextual information, such as the speaker's tone, the situation, and the audience. The process involves preprocessing the text data by removing stopwords, punctuation, and other irrelevant information. Then, feature engineering is performed to extract relevant features from the text data. These features are used to train a machine learning model such as a support vector machine (SVM) or a deep neural network (DNN) to classify the text as sarcastic or non-sarcastic. The model can then be used to classify new text data as sarcastic or non-sarcastic with a high degree of accuracy. NLP libraries such as NLTK and spacy can be used to implement this process in Python. This abstract describes the development of a model to recognize sarcasm in responses. Sarcasm is a form of language in which speakers intend to convey the opposite meaning of what they say. It is a challenging problem, as they may interpret sarcastic language literally, leading to inappropriate responses. The model is trained on a large dataset of sarcastic and non-sarcastic responses and validated on a separate set of test data. Results show that the model achieves high accuracy in recognizing sarcasm in responses, with a precision and recall score above 0.90. The model can be integrated into systems to improve their ability to understand and respond appropriately to sarcastic language, enhancing the user experience and interaction.





# Residual Applicative Life of an Appliance and its Prognosis on its Lasting Life Expectancy

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#### Paper ID: 118

Remaining useful life (RUL) prediction is an important task in many industrial and engineering applications. The accuracy of RUL prediction models depends on the ability to accurately characterize the degradation process of different assets or components over time. Degradation alignment is a data-driven approach that involves aligning the degradation trajectories of different assets or components based on their extracted features. By aligning the trajectories, it is possible to identify common patterns or trends in the degradation process and develop more accurate RUL estimates. Degradation alignment can improve the accuracy of RUL prediction models by reducing the variability in the degradation trajectories of different assets or components. This is particularly useful when dealing with datasets that contain multiple assets or components with different degradation rates or patterns. Careful selection and extraction of relevant features from the collected data is essential to ensure the accuracy and relevance of the alignment process. Incorporating degradation alignment into RUL prediction models can lead to better maintenance planning and cost savings. By developing more accurate and reliable predictions, it is possible to optimize maintenance schedules and minimize downtime. Overall, degradation alignment is a powerful tool for improving RUL prediction accuracy and should be considered as an essential step in the RUL prediction process.





# **Suspicious Activity Prediction Using Python**

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#### Paper ID: 106

The ultimate aim is to provide the indoor security using the CCTV camera. The CCTV Camera is a video camera that feeds or streams its image in real time; Webcams are known for their low manufacturing cost and their high flexibility, making them the lowest-cost form of video conversations and inefficient security issues. The system will detect suspicious person i.e. unauthorized entry in a restricted place in a video by using AMD algorithm and will start tracking once the user has specified a suspicious person by his/her on the display. The main purpose of background subtraction is to generate a reliable background model and thus significantly improve the detection of moving objects. Advanced Motion Detection (AMD) achieves complete detection of moving objects. A camera is been connected inside the monitoring room which produces alert messages on the account of any suspicious activity. Human activity detection for video surveillance system is an automated way of processing video sequences and making an intelligent decision about the actions in the video. It is one of the growing areas of Computer vision and artificial intelligence. Suspicious Human Activity Detection is the process of detecting unwanted human activities in a crowded place and alerting the concerned authority about the activity. This is done by converting video into frames and analyzing the persons and their activities from the processed frames. This paper gives an overall idea of the development of the system that detects suspicious human activities. Detecting suspicious activities in public places has become an important task due to the increasing number of shootings, knife attacks, terrorist attacks, etc. happening in public places all around the world. This paper focuses on a deep learning approach to detect suspicious activities using Convolutional Neural Networks from images and videos. We analyze different RNN architectures and compare their accuracy. We give the architecture of our system which can process video footage in real time from cameras and predict if the activity is suspicious or not.





# Zero-Click Spyware Attack

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#### Paper ID: 119

Spyware is termed as malicious code that aims to gather to information about target system connect it to outside world without user permission. It established a connection, unknown connection between anonymous system call interception-real-time surveillance of voice and VOIP calls. Then the malware can attached and spread through any file format cannot detect by any Antivirus and Anti-Malware. The malware is not hidden, it is within the files. The malware can able to recover the deleted files.





# Distributed Detection of Minimum Cuts in Wireless Multi-Hop Networks

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#### Paper ID: 120

Communicating over multi-hop connections simplifies the establishment of wireless multi-hop networks but brings new challenges such as limited reliability, bottlenecks, and weak connections. The minimum cut of a graph is the smallest subset of edges whose removal disconnects some nodes from the others. Finding minimum cuts of a wireless multi-hop network may reveal useful information such as bottlenecks and critical areas. This article introduces a distributed algorithm for detecting minimum cuts of a given witless multi-hop network by finding available edge-disjoint paths. Initially, the paths between two arbitrary neighbors are detected and these nodes are grouped as visited nodes. Then, the other nodes are added to the visited group one by one by finding at most O(n) paths in total where n is the number of nodes. The comprehensive simulation results showed that the proposed asynchronous algorithm detects minimum cuts with up to 37.1 and 55.8 percent lower sent bytes than the existing synchronous and central algorithms, respectively.





# ACO-Based Secure Routing in Vehicular Adhoc Networks: A Bio-Inspired Approach

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#### Paper ID: 121

Developing highly efficient routing protocols for Vehicular Ad hoc Networks (VANETs) is a challenging task mainly due to the special characters of such networks: large-scale sizes, frequent link disconnections and rapid topology changes. For providing secure communication here using various cryptography based methods. Some security mechanisms used for encrypting and authenticating V2V and V2I messages comes with overhead in terms of computation and communications between the vehicles.

In this paper, we propose an adaptive quality of service (QoS) based routing and Cryptography which will generate the key using Elliptic Curve Cryptography (ECC) for the cars and after that communication between cars take place using Elliptic Curve Digital Signature Algorithm for VANETs called ACO-ECDSA. This new routing protocol is to adaptively choose the intersections through which data packets pass to reach the destination, and the selected route should satisfy with the QoS constraints and fulfill the best QoS in terms of three metrics, namely connectivity probability, packet delivery ratio and delay. To achieve the above objectives, we mathematically formulate the routing selection issue as a constrained optimization problem, and proposed an Ant Colony Optimization (ACO) based algorithm to solve this problem.

In addition, a terminal intersection concept is presented to decrease routing exploration time and alleviate network congestion. Moreover, in order to decrease network overhead, we propose Local QoS Models (LQM) to estimate real-time and complete QoS of urban road segments. It provides better security and privacy if we use combination of this algorithm. Simulation results validate our derived LQM models and show the effectiveness of ACO- ECDSA.





# **Fetal Monitoring System**

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#### Paper ID: 123

Monitoring of fetal movements (FM) is considered an important part of fetal wellbeing assessment due to its association with several fetal health conditions, e.g. fetal distress, fetal growth restriction, hypoxia, etc. However, the current standard methods of FM quantification, e.g. ultrasonography, MRI, and cardiotocography, are limited to their use in clinical environments. In this proposed system, we evaluate the performance of an acoustic sensor-based, cheap, wearable FM monitor that can be used by pregnant women at home. For data analysis, a thresholding based signal processing algorithm that fuses outputs from all the sensors to detect FM automatically is developed. Finally, a spike-like morphology of acoustic signals corresponding to true detected movements is found in the time-frequency domain through spectrogram analysis, which is expected to be useful for developing a more advanced signal processing algorithm to further improve the accuracy of detection.





# Multi Factor Data Analysis for Effective Crop Cultivation System using Machine Learning & Big Data Analysis

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#### Paper ID: 124

As all know that farming Feeds Food to all of us. Without Farmers this earth will not survive, but the fact that we are bothering about Farmers at all. As Technology grows, we all concentrate into Science d Technology Developments and we never forgets to Eat. The main Aim of this Project is to Save Farmers from Natural and Financial Disasters. In our proposed system, we implement the application to identify the Best Cultivation based on multiple parameters like Soil Type, Water Requirement for Cultivation of Crop, Rainfall Details of the Place & Name of the Crop. Using our system, we recommend the Farmer about the bets crops to be cultivated based on the above said parameters. We can increase the income by cultivating absolute crop on the land based on the weather condition of particular location.





# Multi Attacks in Cloud Environment using Big Data Analysis to Ensure Cyber Security

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#### Paper ID: 125

In the proposed system we are implementing a system to identify the network traffic occurred by attackers and identifies the attacker who is attacking the server. Those IP address will be send to the system. Identify the attacker of shell commands. We are implementing a Big Data based centralized log analysis system to identify the network traffic occurred by attackers through DDOS, SQL Injection and Bruce Force attack. The log file is automatically transmitted to the centralized cloud server and bi g data is initiated for analysis process.





# Real-time Genetic Sequence Verification with Disease Mapping and Polymorphism

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#### Paper ID: 126

In the Existing system, Gene dependency networks often undergo changes with respect to different disease states. Understanding how these networks rewire between two different disease states is an important task in genomic research. In the Proposed system, a new differential network inference model which identifies gene network rewiring by combining gene expression and gene mutation data. Similarities and differences between different data types are learned via a group bridge penalty function. In the Modification process, project is to recommend Diet pattern or any other natural drugs which can be recommended to those people who is expected to get into the disease in a course of time by verifying the mutated Genes.





# Fake Product Review Monitoring Application Using Python

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#### Paper ID: 129

In recent times, product reviews on online shopping sites perform a significant role in product sales since people and organizations strive to learn all of the benefits and drawbacks of a product before purchasing it because there are numerous options for the same thing, as there can be different multiple manufacturers who manufacture the same type of product. There could be a variation in the sellers who provide the product, or there could be a difference in the procedure that is followed while making a purchase of the product, so the reviews can be directly linked with the product's sales, and thus it is crucial for online services to filter out fake reviews since their own reputation is at stake. Thus, we need a Fake Review Detection System is needed to discover any suspicious reviews because it's impractical for them to manually check for every review linked with products. So a technology is utilised to try to detect any tendency in the customer reviews. Our review monitoring system makes 6 checks to check for the negative reviews in large datasets. The six kinds of checks are -Review which have dual view, Reviews in which same user promoting or demoting a brand, Reviews in which same IP address is promoting or demoting a brand, Reviews posted as flood by same user, Similar reviews posted in same time frame, meaning less texts in reviews using LSA.





# Prediction of Chronic Obstructive Pulmonary Disease (COPD) Using Classification Algorithm

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#### Paper ID: 130

Extravascular lung water (EVLW)-filled lungs subjected to ultrasound insolation result in unique reverberation artifacts known as B-lines. The quantity of EVLW and the number of B-lines present show a reasonable association. However, because this modality's analysis of B-line artifacts is semi quantitative and relies on visual interpretation, it is susceptible to inter-observer variability. This study's goal was to use cutting-edge, quantitative lung ultrasound surface wave elastography technology (LUSWE) to the bedside evaluation of pulmonary edema in patients admitted with acute congestive heart failure. Using machine learning techniques, this issue can be avoided in one of the most fascinating (or possibly most lucrative) time series data. As a result, predicting pulmonary disease has grown in importance as a field of study.





# Performance Analysis on NIDS Dataset Using Decision Tree Classifier

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#### Paper ID: 131

Intrusion detection is an important technology in business sector as well as an active area of research. Identifying intrusions in networks and applications has become one of most essential element to prevent their data from intruders. Today, intrusion detection is one of the difficult tasks for administrators and security professionals. In recent years, the huge volume of data and its expected growth over upcoming years are some of the key challenges in the area of intrusion detection, so effective and efficient techniques are needed to handle enormous data. In order to reduce the computational complexity, dimensionality reduction methods and feature selection methods are needed. The objective of this study is to explore and classify various feature selection methods for obtaining low dimensional data. Experimental results on the NSL-KDD dataset shows that our feature selection method outperforms well to reveal higher confidence in detection accuracy.





# A Review on Machine Learning Styles in Computer Vision -Techniques and Future Directions

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## Paper ID: 132

Real time object detection is a vast, vibrant and complex area of computer vision. If there is a single object to be detected in an image, it is known as Image Localization and if there are multiple objects in an image, then it is Object Detection. This detects these mantic objects of a class in digital images and videos. The applications of real-time object detection include tracking objects, video surveillance, pedestrian detection, people counting, self-driving cars, face detection, ball tracking in sports and many more. Convolution Neural Networks is a representative tool of Deep learning to detect objects using OpenCV (Open source Computer Vision), which is a library of programming functions mainly aimed at real-time computer vision.





# Speak Assist - Person Assistance for the Visually Impaired Using Speech Recognition in NLP

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#### Paper ID: 128

The purpose of this research is to develop an AI-based personal assistance system for visually impaired individuals using technologies like speech recognition and natural language processing (NLP). There are around 2.2 billion people who are visually impaired. The system aims to provide a convenient and efficient way for visually impaired individuals to interact with their surroundings and carry out dayto-day tasks. The system processes voice instructions using speech recognition to determine demands, and it employs natural language processing (NLP) to decipher the meaning and intent of the requests. The results of this research could have a significant impact on improving the quality of life for visually impaired individuals and enhancing their independence and accessibility to the environment.





# Prediction and Forecasting Bitcoin Price Prediction Using LSTM

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#### Paper ID: 134

Cryptocurrencies are peer-to-peer-based transaction systems where the data exchanges are secured using the secure hash algorithm (SHA)-256 and message digest (MD)-5 algorithms. The prices of cryptocurrencies are highly volatile and follow stochastic moments and have reached their unpredictable limits. They are commonly used for investment and have become a substitute for other types of investment like metals, estates, and the stock market. Their importance in the market raises the strict requirement for a sturdy forecasting model. However, cryptocurrency price prediction is quite challenging due to its dependency on other cryptocurrencies. Many researchers have used machine learning and deep learning models, and other market sentiment-based models to predict the price of cryptocurrencies. As all the cryptocurrencies belong to a specific class, we can infer that the increase in the price of one cryptocurrency can lead to a price change for other cryptocurrencies Researchers had also utilized the sentiments from tweets and other social media platforms to increase the performance of their proposed system. Motivated by these, in this paper, we propose a hybrid and robust framework, DL-Gues, for cryptocurrency price prediction that considers its interdependency on other cryptocurrencies and also on market sentiments. We have considered price prediction of Dash carried out using price history and tweets of Dash, Litecoin and Bitcoin for various loss functions for validation. Further, to check the usability of DL-GuesS on other cryptocurrencies, we have also inferred results for price prediction of Bitcoin-Cash with the price history and tweets of Bitcoin-Cash, Litecoin and Bitcoin.





# Enhanced Plant Leaf Disease Detection Using Deep Learning Techniques

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#### Paper ID: 135

Indian economy is largely depending on the growth in the agricultural production. Now-a-days, identifying the plant leaf disease is one of the most challenging tasks in the agricultural sector because plant leaf diseases spread very quickly and effects the yield of the crop. In this paper, we proposed three deep learning models i.e, VGG16, VGG19 and InceptionV3 for detecting various plant leaf diseases because manual detection sometimes leads to inaccurate results. The dataset consists of several varieties of plants like tomato, apple, potato, sugarcane, grapes and corn of both healthy and diseased leaves and all the images are collected manually and also from various freely available resources. Using the three models we achieved an average accuracy as 91.8% accuracy which demonstrates the feasibility of the profound deep neural network approach.





# **Cryptocurrency Price Analysis with Artificial Intelligence**

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#### Paper ID: 136

Crypto currency is playing an increasingly important role in reshaping the financial system due to its growing popular appeal and mechant acceptance. While many people are making investments in Cryptocurrency, the dynamical features, uncertainty, the predictability of Cryptocurrency are still mostly unknown, which dramatically risk the investments. It is a matter to try to understand the factors that influence the value formation. In this study, we use advanced artificial intelligence frameworks of fully connected Artificial Neural Network (ANN) and Long Short-Term Memory (LSTM) Recurrent Neural Network to analyse the price dynamics of Bitcoin, Etherum, and Ripple. We find that ANN tends to rely more on long-term history while LSTM tends to rely more on short-term dynamics, which indicate the efficiency of LSTM to utilise useful information hidden in historical memory is stronger than ANN. However, given enough historical information ANN can achieve a similar accuracy, compared with LSTM. This study provides a unique demonstration that Cryptocurrency market price is predictable. However, the explanation of the predictability could vary depending on the nature of the involved machine-learning model.





# Real-Time Identification of Medicinal Plants Species in Natural Environment Using Deep Learning

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#### Paper ID: 137

This approach involves using advanced computer algorithms, specifically deep learning models such as convolutional neural networks (CNNs), to automatically identify and classify different medicinal plant species in the field. The system is trained on a large dataset of plant images, and can be deployed on a portable device such as a smartphone or tablet, allowing for quick and accurate identification of plant species in real-time. The benefits of this approach include a reduction in time and effort required for plant identification, improved accuracy and reliability, and the prevention of misidentification that could have serious consequences for human health and the environment. The ultimate goal of this approach is to improve healthcare outcomes and environmental conservation efforts by providing a more efficient and effective means of identifying medicinal plant species in natural environments.





# Prediction of Early Hospitalization with BP & HB Values by Using Effective Machine Learning Algorithms

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#### Paper ID: 138

Overcrowding in emergency departments (EDs) has long been a problem worldwide and has serious consequences for patient satisfaction and safety. Typically, overcrowding is caused by delays in the boarding time of ED patients waiting for test results & inpatient beds. If the hospitalization of patients is predicted early enough in EDs, inpatient beds can be prepared in advance and the boarding time can be reduced. We design machine learning-based hospitalization predictive models using data on 27,747 patients and compare the experimental results. Five predictive models are designed: 1) logistic regression, 2) XGBoost, 3) NGBoost, 4) support vector machine, and 5) decision tree models. Based on the predictive results, we estimate the quantitative effects of hospitalization predictions on EDs and wards. Using the data from the ED of a general hospital in South Korea, our experiments show that the ED patients health conditions by the values of BP & HB.





# Prediction of Air Pollution Using Machine Learning

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#### Paper ID: 139

Due to human activities, industrialization and urbanization air is getting polluted. The major air pollutants are CO, NO, C6H6, etc. The concentration of air pollutants in ambient air is governed by the meteorological parameters such as atmospheric wind speed, wind direction, relative humidity, and temperature. Earlier techniques such as Probability, Statistics etc. were used to predict the quality of air, but those methods are very complex to predict, the Machine Learning (ML) is the better approach to predict the air quality. With the need to predict air relative humidity by considering various parameters such as CO, Tin oxide, nonmetallic hydrocarbons, Benzene, Titanium, NO, Tungsten, Indium oxide, Temperature etc, approach uses Linear Regression (LR), Support Vector Machine (SVM), Decision Tree (DT), Random Forest Method (RF) to predict the Relative humidity of air and uses Root Mean Square Error to predict the accuracy.





# **Credit Card Fraud Detection Using Machine Learning**

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#### Paper ID: 140

In recent years, machine learning has been widely used for the fraud detection process and achieved favarouble performance. According to the Financial sectors have focused attention to recent computational methodologies to provide the credit card fraud problem. Our analysis provides a comprehensive guide to sensitivity analysis of current parameters with regards to words the current performance in credit card fraud detection. It defines only the numerical input variables which the help of the Principal Component Analysis (PCA) transformation. Unfortunately, due to confidentiality issues, we should not provide the original features and more background information to be provided. To predict machine learning model to predict whether a transaction is fraudulent or not by approaching Logistic, Support vector classifier, Random Forest algorithms and identify the most important variables that may lead to higher accuracy in credit card fraudulent transaction detection. Additionally, we can compare and discuss the performance of various machine learning algorithms from the bank credit dataset with evaluation classification report from Principal component analysis and identify the confusion matrix and scalar metrics. So, present a framework of the parameter of the Machine learning topologies for the credit card fraud detection is to be enable financial institutions to reduce losses by preventing fraudulent activity to words the bank related process.





# A Small Traffic Object Detection for Small Traffic Signals

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#### Paper ID: 141

Due to the massive adoption of mobile money in Sub-Saharan countries, the global transaction value of mobile money exceeded \$2 billion in 2021. Projections show transaction values will exceed \$3 billion by the end of 2022, and Sub-Saharan Africa contributes half of the daily transactions. SMS (Short Message Service) phishing cost corporations and individuals millions of dollars annually. Spammers use Smishing (SMS Phishing) messages to trick a mobile money user into sending electronic cash to an unintended mobile wallet. Though Smishing is an incarnation of phishing, they differ in the information available and attack strategy. As a result, detecting Smishing becomes difficult. Numerous models and techniques to detect Smishing attacks have been introduced for high-resource languages, yet few target low-resource languages such as Swahili. This study proposes a machine-learning based model to classify Swahili Smishing text messages targeting mobile money users.





# License Plate Recognition Based on YOLOv8 and Tesseract OCR

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#### Paper ID: 142

License plate recognition (LPR) systems have gained significant attention due to their applications in various domains such as traffic management, parking management, and law enforcement. In this we propose a license plate recognition (LPR) system based on the YOLOv8 object detection algorithm and Tesseract OCR for character recognition. The system is designed to process images from a dataset for accurate license plate detection and character recognition. The YOLOv8 algorithm is used to detect license plates in the images, while Tesseract OCR is employed for character recognition. The recognized characters are processed to extract relevant information from the license plates. The proposed system is expected to provide accurate and efficient LPR, making it suitable for various applications such as traffic management and law enforcement.





# Virtual Mouse System Based on Real Time Hand Gesture Recognition Using Deep Learning

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#### Paper ID: 143

Human-computer interaction (HCI) with gesture recognition is a valuable and intuitive computer input technique that recognizes a variety of meaningful human expressions. Hand gestures are one of the most natural and widely used means of communication, and they can convey a wide range of meanings. In recent years, research on vision-based hand gesture detection has gotten a lot of interest. However, researchers face a number of obstacles in this field. Gesture interpretation must be done rapidly and accurately in the vision-based hand gesture interaction process between humans and computers.

One of the most amazing Human-Computer Interaction (HCI) inventions is the mouse. Because it utilizes a battery for power and a dongle to connect it to the PC, a wireless mouse or a Bluetooth mouse still uses devices and is not totally device free. This issue can be overcome in the proposed Al virtual mouse system by using a webcam or a built-in camera to capture hand motions and recognize hand tips using computer vision.

The system's algorithm is based on the machine learning method. The computer may be controlled remotely using hand movements and can execute left click, right click, scrolling, and computer cursor tasks without the requirement of a hardware mouse. For detecting the hands, the algorithm uses deep learning. Furthermore, a real-time demonstration system based on a single-camera mechanism that allows for the usage of wearable devices is being developed. Despite some interference in the simulated scenarios, simulation findings show that the recognition rate remains high. As a result, the suggested method will prevent COVID-19 from spreading by removing the need for human interaction and device control.





# Remodeling and Simulation of Biodegradable Stent Using Solidworks

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#### Paper ID: 146

**Objectives**: To design a bio-degradable stent to withstand the appropriate environment. The stent design is done with Solid works and the design are simulated in Ansys and it mainly focuses on the remodelling and simulation of a biodegradable stent using Solidworks software which provides suitable mechanical properties and biodegradation characteristics for use in clinical application. Introduction: Traditional metal stents can lead to long-term challenges that the development of biodegradable stents has become an emerging field of research in recent years. The current research is involved with the remodel and simulation of a biodegradable stent using Solidworks software. The arterial shape was used for creating the stent, and the structural integrity and biodegradation qualities were simulated using ansys. The ansys results confirmed that the stent's construction could withstand the physiological loads experienced in the artery. Besides, the biodegradation qualities of the stent were examined using a degradation model, which approximated the rate at which the stent would decay over time. The use of Solidworks to modify and simulate the biodegradable stent indicated that the stent has suitable mechanical qualities and biodegradation properties for the use in clinical applications.

**Method:** Material extrusion, one of the most common 3D printing strategies, has been used for various biomedical applications because of its easy implementation and high printing efficiency; additionally, it can be used to print a wide range of materials. Fused deposition modelling (FDM) and extrusion direct ink writing are two material extrusion subcategories that have been extensively employed for BPVS printing (DIW).

**Conclusions:** The creation of BPVSs necessitates the coordination of material design and selection, manufacturing methods, and characterization techniques. The main characteristics of BPVSs and various 3D printing techniques are methodically introduced in this study. Future iterations of the model might solve its rigid design and flexibility constraints. Therefore, 3D printing of cardiovascular models for simulation has the potential to enhance simulation of the cardiovascular system, which could ultimately increase patient safety.





# Privacy Preserving Voting Scheme Based on Block Chain Technology

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#### Paper ID: 148

The security considerations of the votes are based on blockchain technology using cryptographic hashes to secure end-to-end verification. To this end, a successful vote cast is considered as a transaction within the blockchain of the voting application. Therefore, a vote cast is added as a new block (after successful mining) in the blockchain as well as being recorded in data tables at the backend of the database. The system ensures only one-person, one-vote (democracy) property of voting systems. This is achieved by using the voter's unique IRIS image, which is matched at the beginning of every voting attempt to prevent double voting. The IRIS Recognition is the study of physical or behavioral characteristics of human being used for the identification of person. So implement real time authentication system using IRIS based biometric authentication for authorized the person for online voting system. This work claims to apprehend the security and data management challenges in blockchain and provides an improved manifestation of the electronic voting process. A transaction is generated as soon as the vote is mined by the miners which are unique for each vote. If the vote is found malicious it is rejected by miners. After validation process, a notification is immediately sent to the voter through message or an email providing the above defined transaction id by which user can track his/her vote into the ledger. Although this functions as a notification to the voter however it does not enable any user to extract the information about how a specific voter voted thereby achieving privacy of a voter. It is important here to note that cryptographic hash for a voter is the unique hash of voter by which voter is known in the blockchain. This property facilitates achieving verifiability of the overall voting process. Furthermore, this id is hidden and no one can view it even a system operator cannot view this hash therefore achieving privacy of individual voters.





# Fraudulent Banking Transaction Classification Using Deep Learning Algorithm (MLP Algorithm)

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#### Paper ID: 144

Fraudulent banking transactions can be classified into several categories based on the nature and type of the fraud. The common types of fraudulent banking transactions include credit card fraud, identify theft, phishing scams, and ATM skimming. Understanding these types of fraud can help individuals and organizations take necessary precautions to prevent financial losses and protect their sensitive information. In this project we can develop the framework for classify the banking transactions using deep learning algorithm named as multilayer perceptron algorithm with improved accuracy rate.

Behavior-based fraud detection is a method of identifying fraudulent activities by analyzing the behavior of users or entities. This approach focuses on identifying patterns of behavior that are usual or abnormal, rather than relying on predefined rules or known fraud patterns. Behavior-based fraud detection can be applied to a wide range of industries, including finance, healthcare, and e-commerce, and can be used to detect various types of fraud, such as credit card fault, identify theft and insurance fraud. The method typically involves collecting and analyzing large amount of data, such as transactional data, login attempts, and user behavior patterns, to identify anomalies that may indicate fraudulent activity.





# Secure Data Transmission on cloud computing using AES and ECC Algorithm

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#### Paper ID: 127

Cloud Computing facilitates business by storing an enormous amount of data in the cloud transmitted over the Internet with seamless access to the data and no hardware compatibility limitations. However, data during transmission is vulnerable to man in middle, known plain text, chosen cipher text, related key and pollution attack. Therefore, uploading data on a single cloud may increase the risk of damage to the confidential data. Existing literature study uncovered multiple cryptography techniques such as SA-EDS, Reliable Framework for Data Administration (RFDA), Encryption and Splitting Technique (EST) to secure data storage over multi-cloud. However, existing methods are vulnerable to numerous attacks. This article emphasis on data security issues over multi cloud and proposes a Proficient Security over Distributed Storage (PSDS) method. PSDS divides the data is into two categories; normal and sensitive, furthermore the sensitive data is further divided into two parts. Each part is encrypted and distributed over multi-cloud whereas the normal data is uploaded on a single cloud in encrypted form. At the decryption stage, sensitive data is merged from multicloud. The PSDS is tested against multiple attacks and it has been concluded that it is resistant to related key attack, pollution attack, chosen cipher text attack, and known plain text attack. Furthermore, PSDS has less computational time as compared to the STTN and RFD encryption method.





# Automated Image-based Detection of Plant Diseases Using Convolutional Neural Networks (CNNs) and K Means Clustering Techniques

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#### Paper ID: 151

The research on automated image-based disease detection for plants using convolutional neural networks (CNNs) and k-means clustering techniques is presented in this paper. There are numerous environmental, genetic, and biotic agents that can cause plant diseases. To ensure maximum productivity and effective resource use, accurate identification and prompt management of these diseases are crucial. The method described in this paper uses CNNs and k-means clustering to accurately and quickly identify various plant diseases. Images of healthy and diseased plants were gathered and prepared. Then features from the images were extracted using CNNs. Finally, the images were divided into various classes of plant diseases using k means clustering. The results demonstrate that the proposed method is capable of accurately detecting the disease symptoms and classifying them into the appropriate disease categories. The method is tested on a dataset of images of tomato and potato plants infected by various diseases. A quick and accurate diagnosis that can help in the prompt treatment of plant diseases is made possible by this method, which has the potential to be used with other crops and diseases. For more effective disease management, additional research can examine the combination of this approach and precision agriculture technologies.





# Secure Intelligence through Dispersed Network in Block Chain

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#### Paper ID: 152

In General Centralization system is something known concentration authority at the top level at the contrary decentralized system is something evenly and systematic distribution of authority or simply, Decentralization refers to a specific form of organizational structure where the top management delegates decisionmaking responsibilities and daily operations to middle and lower subordinates this decentralization system was started to implementation on many application some of the decentralization application like Bittorrent, Tor which is a part of p2p network due to the specification which Delegation of authority to lower management, Faster response time., Quick decision making this system is widely used in many various domains where our project paper proposes to increase purpose of security in trustless transaction, which to increase the crowd funding domain where the transaction is made encrypted or decentralized will increase by finding the transaction without good or bad by using classification technique the trust in both recipient and donor users. In order to strengthen security and win the confidence of both donors and recipients in the crowd funding sector, this was our key goal.





# Smart Facial Features for Real-Time Operator Sleepiness Prediction Using Hybrid Convolutional Neural Network in Computer Vision

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#### Paper ID: 153

Operator Sleepiness prediction is a process of detecting when an Operator is experiencing Sleepiness or fatigue while driving a vehicle. This is an important safety feature, as Sleepy driving can lead to accidents and injuries. There are several methods used to predict Operator Sleepiness, including physiological monitoring, behavioural monitoring, and hybrid methods. Physiological monitoring methods like CNN involve measuring the Operator's physiological signals, such as image or video frame processing from a camera. These frames can provide information about the Operator's level of alertness and can be used to detect Sleepiness. Behavioural monitoring methods that are DCNN on the other hand, involve observing the Operator's behaviour, such as comparing the frames with the processed dataset. This information is mainly used to detect Sleepiness. Hybrid methods combine physiological and behavioural monitoring methods of CNN and DCNN and added to the fuzzy logic algorithm makes an HDCNN (Hybrid Deep Convolutional Neural Network) to provide a more comprehensive assessment of the Operator's level of Sleepiness and improves the accuracy. This project describes on how to detect the eyes and mouth in a video recorded from the experiment conducted by MIROS (Malaysian Institute of Road Safety). In the video, a participant will drive the driving simulation system and a webcam will be place in front of the driving simulator. The video will be recorded using the webcam to see the transition from awake to fatigue and finally, drowsy. The designed system deals with detecting the face area of the image captured from the video. The purpose of using the face area so it can narrow down to detect eyes and mouth within the face area. Once the face is found, the eyes and mouth are found by creating the eye for left and right eye detection and mouth detection.



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