



CRITERION: 3.3.2

Number of research papers per teachers in the Journals notified on UGC website during the year 2023-24

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S.No.	Title of paper	Name of the author/s	Name of journal	Link landing to the paper (article) / Link to the Journal website	UGC CARE list/Scopus /Web of Science/ other
CSE					
1	A survey on Deep Learning Algorithm for IoT security	Mr. S. Rajarajan	International Journal of Scientific Research and Engineering Development	https://ijsred.com/volume6/issue3/IJSRED-V6I3P100.pdf / https://ijsred.com	Other
2	Artificial Intelligence in Gaming	Ms. S. Abikayil Aarthi	Journal Of Emerging Trends and Novel Research	https://rjpn.org/jetnr/viewpaperforall.php?paper=JETNR2401015 / https://rjpn.org	Other
3	AutoMI and Automated Machine Learning Pipelines	Ms. S. Abikayil Aarthi	International Journal of Research Publication and Reviews	https://ijrpr.com/uploads/V5ISSUE4/IJRPR26104.pdf / https://ijrpr.com	Other
4	Lung Disease Detection Using Deep Learning'	Ms. S. Abikayil Aarthi	International Research Journal of Modernization in Engineering Technology and Science	https://www.irjmets.com/uploadedfiles/paper//issue_5_may_2024/58364/final/fin_irjmets1717257680.pdf / https://www.irjmets.com	Other
5	Sign Language Interpreter using Machine Language	Ms. S. Abikayil Aarthi	International Research Journal of Modernization in Engineering Technology and Science	https://www.irjmets.com/uploadedfiles/paper/issue_5_may_2024/58353/final/fin_irjmets1717240099.pdf / https://www.irjmets.com	Other
6	A Survey of enabling secure and scalable heart care data exchange through Distributed Computing	Ms. S. Abikayil Aarthi	International Journal for Science and Advance Research In Technology(IJSART)	https://ijsart.com/public/storage/paper/pdf/IJSARTV9I1073423.pdf / https://ijsart.com	Other
7	Fault Data Aggregator Recovery Process in wireless Sensor Networks	Ms. K. Abinaya	International Journal of Applied Engineering Research	https://www.researchgate.net/publication/288433869_Fault_data_aggregator_recovery_process_in_wireless_sensor_networks/ / https://www.ripublication.com/ijaer.htm	Other
8	Bitcoin Price Prediction Using Machine Learning	Dr. S. Kannan Ms.M. Kavitha	International Research Journal of Modernization in Engineering Tech... & Science(IRJMETS)	https://www.irjmets.com/uploadedfiles/paper/issue_5_may_2024/58363/final/fin_irjmets1717430457.pdf / https://www.irjmets.com	Other

9	Online Supermarket System Using QR Scan	Ms.T.Sindhu, Dr. S.M.Uma	International Research Journal of Modernization in Engineering Technology and Science(IRJMETS)	https://www.ijert.org/research/online-supermarket-system-using-qr-scan-IJERTCONV11IS03023.pdf/ / https://www.ijert.org	Other
10	NATURAL DISASTER ANALYSIS AND CLASSIFICATION USING MACHINE LEARNING	Dr.K.Abhirami ,Ms.D.Mangalambigai	International Research Journal of Modernization in Engineering Technology and Science(IRJMETS)	https://www.irjmets.com/uploadedfiles/paper/issue_5_may_2024/58356/final/fin_irjmets1717669819.pdf/ / https://www.irjmets.com	Other
11	KINGS STUDENT APPLICATION USING ADVANCED TECHNIQUES	Ms.S.Puvaneswari ,Ms.R.Sugantha Lakshmi	International Research Journal of Modernization in Engineering Technology and Science(IRJMETS)	https://www.irjmets.com/uploadedfiles/paper//issue_5_may_2024/58359/final/fin_irjmets1717257225.pdf/ / https://www.irjmets.com	Other
12	MULTIPLE DISEASE PREDICTION SYSTEM USING MACHINE LEARNING	Mr.S.Rajarajan, Ms.S.Puvaneswari	International Research Journal of Modernization in Engineering Technology and Science(IRJMETS)	https://www.irjmets.com/uploadedfiles/paper//issue_3_march_2023/35252/final/fin_irjmets1680589001.pdf/ / https://www.irjmets.com	Other
13	AI BASED SMART VIDEO PLAYER USING FACE RECOGNITION	Ms.B.Bavithra, Ms.S.Puvaneswari	International Research Journal of Modernization in Engineering Technology and Science(IRJMETS)	https://www.irjmets.com/uploadedfiles/paper//issue_5_may_2024/58358/final/fin_irjmets1717257313.pdf/ / https://www.irjmets.com	Other
14	CYBER BULLYING DETECTION ON SOCIAL MEDIA USING MACHINE LEARNING	Ms.S.Sugantha Lakshmi, Mr.M.Arun	International Research Journal of Modernization in Engineering Technology and Science(IRJMETS)	https://www.irjmets.com/uploadedfiles/paper//issue_5_may_2024/58365/final/fin_irjmets1717256925.pdf/ / https://www.irjmets.com	Other
15	IOT Based Home automation Timer and Sensor	Ms.N.Dhamayandhi, Ms.B.Bavithra	International Research Journal of Modernization in Engineering Technology and Science(IRJMETS)	https://www.irjmets.com/uploadedfiles/paper//issue_5_may_2024/58360/final/fin_irjmets1717316184.pdf/ / https://www.irjmets.com	Other
16	AN IMPROVED MENTAL HEALTH PREDICTION USING MACHINE LEARNING	Ms.D.Mangalambigai ,Mr.S.Rajarajan	International Research Journal of Modernization in Engineering Technology and Science(IRJMETS)	https://www.irjmets.com/uploadedfiles/paper//issue_5_may_2024/58368/final/fin_irjmets1717670008.pdf/ / https://www.irjmets.com	Other
17	SOFTWARE DEFECT PREDICTION USING RFC	Ms.B.Sangeetha, Ms.M.Vidhya	International Research Journal of Modernization in Engineering Technology and Science(IRJMETS)	https://www.irjmets.com/uploadedfiles/paper//issue_5_may_2024/58354/final/fin_irjmets1717256833.pdf/ / https://www.irjmets.com	Other

18	ONLINE SUPERMARKET SYSTEM USING QR SCAN	Dr. S. M. Uma Ms.T.Sindhu	International Research Journal of Modernization in Engineering Technology and Science(IRJMETS)	https://www.irjmets.com/uploadedfiles/paper//issue 5 may 2024/58362/final/fin irjmets1717316343.pdf / https://www.irjmets.com	Other
ECE					
19	Intrusion detection in big data environment using hybrid deep learning algorithm (VAE-CNN)	Dr.S.Kannan	Intelligent & Fuzzy Systems	https://www.researchgate.net/publication/373697576 Intrusion detection in bigdata environment using hybrid deep learning algorithm VAE-CNN / https://www.researchgate.net/journal/Journal-of-Intelligent-Fuzzy-Systems-1875-8967	Scopus
20	Metaheuristic Optimization Based Energy Aware Clustering Scheme for Wireless Sensor Networks	Dr.S.Kannan	Ad Hoc & Sensor Wireless Networks,	https://www.oldcitypublishing.com/journals/ahswn-home/ahswn-issue-contents/ahswn-volume-58-number-3-4-2024/21705-2/ / https://journals.sfu.ca/ahswn/index.php/ahswn	SAE
21	A Novel Machine Learning –based Model for Network Attack Detection in Cyber Security Using Big Data	Dr.S.Kannan	Journal of Environmental Protection and Ecology	https://scibulcom.net/en/article/i7hpmjgrJXixFSSp0HqL/ / https://scibulcom.net/en/journal/1311-5065	SAE
22	Texture-driven super-resolution of ultrasound images using optimized deep learning model	Dr.S.Kannan	The Imaging Science Journal,	https://www.tandfonline.com/doi/full/10.1080/13682199.2023.2218224/ / https://www.tandfonline.com/journals/yims20	SAE
23	Unique Secure Cracking with Efficient Path Detection Routing Technique	Dr.S.Kannan	Journal of Environmental Protection and Ecology	https://www.irjmets.com/uploadedfiles/paper//issue 10 october 2023/45227/final/fin irjmets1698238770.pdf / https://scibulcom.net/en/journal/1311-5065	SAE
24	Improvement of life time for wireless body sensor networks using optimal clustering and routing protocol	Dr.S.Kannan	Journal of Intelligent & Fuzzy Systems	https://content.iospress.com/articles/journal-of-intelligent-and-fuzzy-systems/ifs221172/ / https://www.researchgate.net/journal/Journal-of-Intelligent-Fuzzy-Systems-1875-8967	SAE
25	Localization Accuracy in Wireless Sensor Networks using Machine Learning Predictive models	S.Ramarajan, A.Parrivallal	International Journal of Research Publications and Reviews	https://ijrpr.com/uploads/V5ISSUE5/IJRPR28383.pdf / https://www.ijrpr.com/callfp.php	Others
EEE					
26	Micro Wind Power Generation Based on SEPIC Converter	N. Priya, D. Mercy and P. Narasimman	International Journal of Multidisciplinary Research Transactions	https://www.ijmrt.in/papers/Priya%20et%20al%20with%20DoI.pdf / https://www.ijmrt.in	Others

27	Design and Implementation of Optimized Controller Tuning of a Real Time Coupled Spherical Tank Process used in Process Industries	D. Mercy, N. Priya, and P. Narasimman	International Journal of Multidisciplinary Research Transactions	https://www.ijmrt.in/paper/s/Mercy%20et%20al%20with%20DoI.pdf/ https://www.ijmrt.in	Others
28	A review on partial discharge diagnosis in cables: Theory, techniques, and trends	Suganya Govindarajan, Adolfo Morales, Jorge Alfredo Ardila-Rey, Narasimman Purushothaman	Measurement	https://www.sciencedirect.com/science/article/pii/S0263224123004463/ https://www.sciencedirect.com/journal/measurement	Scopus
29	Study of PD Signatures in Transformer using Impulse Voltage by Holo Hilbert Spectral Analysis	Harimurugan Devarajan, Suganya Govindarajan, Jorge Alfredo Ardila-Rey, Swaminathan Venkatraman, Narasimman Purushothaman	IEEE Transactions on Instrumentation and Measurement	https://ieeexplore.ieee.org/abstract/document/10198276/ https://ieeexplore.ieee.org/xpl/RecentIssue.jsp?punumber=19	Scopus
30	A novel E-nose system for the characterization of dissolved gases in dielectric oils	Jorge Alfredo Ardila-Rey, Matías Patricio Cerda-Luna, Carlos Beltran Muñoz, Bruno Albuquerque de Castro, Suganya Govindarajan	IEEE Transactions on Instrumentation and Measurement	https://ieeexplore.ieee.org/abstract/document/10225563/ https://ieeexplore.ieee.org/xpl/RecentIssue.jsp?punumber=19	Scopus
MECH					
31	Study on the engine characteristics (CI) of using pumpkin-maize-blended biodiesel mixed with additive (diethyl ether)	N. Magesh, T. Pushparaj, S. Sabanayagam	Bulletin of the Chemical Society of Ethiopia	https://www.ajol.info/index.php/bcse/article/view/269697/ https://www.ajol.info/index.php/bcse	SCOPUS & WoS
32	Optimization of Electric Discharge Machining(EDM) process parameters using Grey Relational Analysis(GRA) for Incoloy 800HT	Arunkumar Ganesan, S.Nelson Raja, A.Abiyuth, A.Arsath Sathick	International Journal of Engineering Research & Technology (IJERT)	https://www.ijert.org/research/optimization-of-electric-discharge-machinedm-process-parameters-using-grey-relational-analysisgra-for-incoloy-800ht-IJERTCONV12IS02043.pdf/ https://www.ijert.org/	Others
33	Performance Characteristics of Diesel Engine Using Biodiesel Blends	P. P. Santharaman, E. Priya, R. Rajadurai, M. Vivekananthan, S. Balaganesh	International Journal for Research in Applied Science & Engineering Technology (IJRASET)	https://www.ijraset.com/research-paper/performance-characteristics-of-diesel-engine/ https://www.ijraset.com	Others

34	Investigation of Emission and Performance Characteristics by using of Jojoba Oil and Tamarind with Additive in Single Cylinder C.I Engine	R. Rajadurai, M. Vivekananthan, S. Balaganesh, H. Agilan, S. Desikan	International Journal for Research in Applied Science & Engineering Technology (IJRASET)	https://www.ijraset.com/research-paper/investigation-of-emission-and-performance-characteristics-by-using-of-jojoba-oil/ / https://www.ijraset.com	Others
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A Survey on Deep Learning Algorithm for IoT Security

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Abstract:

The Internet of Things (IoT) connects billions of connected machines that, with limited human interference, can interact with each other. IoT, with an estimated 50 billion computers by the end of 2020, is one of the fastest-growing areas in the history of computing. Implementing security mechanisms for IoT devices and their inherent flaws, such as encryption, authentication, access management, network, and application security, is unsuccessful. To overcome such process the IoT ecosystem are successfully protect, current security strategies should be improved. Over the past few years, deep learning (DL) has progressed dramatically, and in many critical implementations, artificial intelligence has transitioned from laboratory innovation to functional machinery. Therefore different potential IoT device attack surfaces and possible threats associated with each surface are addressed. DL approaches for IoT protection are then carefully analyzed and the prospects, drawbacks, and deficiencies of each approach are discussed. In implementing DL for IoT security, we present the possibilities and challenges involved. Such possibilities and obstacles will serve as possible future avenues for science.

Keywords — Deep learning, Security based intelligence, Internet of Things (IoT), IoT Big data.

I. INTRODUCTION

Latest developments in networking technology, such as the Internet of Things (IoT), have transcended the conventional understanding of surrounding environments substantially. IoT technologies should be modernized to enhance the quality of life[1]. Capable of capturing, quantifying, and interpreting the surrounding ecosystems. This condition simplifies the modern ways of contact between people and objects and thus makes for the realization of smart cities [2]. With an estimated 50 billion computers by the end of 2020, IoT is one of the fastest-growing areas in the history of computing [3]. A crucial outcome of the comprehensive IoT application is that it becomes an integrated activity to deploy. IoT. E.g., during the implementation process, IoT systems should

simultaneously consider energy consumption, stability, broad IoT data analytics methods, and software application interoperability. When contemplating success in another one factor should not be overlooked [4]. IoT innovations, on the one hand, play a key role in improving smart real-life software, such as smart healthcare, smart housing, smart transportation, and smart schooling. On the other hand, new security problems have been posed by the cross-cutting and wide scale design of IoT systems with multiple modules participating in the implementation of such systems.

Four stage of IoT Process are followed:

Application layer: The data management level, also known as the cloud, is where data is handled and used by end-users.



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Artificial Intelligence In Gaming

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ABSTRACT

Artificial Intelligence (AI) has become a transformative force in the gaming industry, revolutionizing player experiences and game development processes. This abstract provides an overview of the profound impact of AI on gaming and explores key advancements and applications in this dynamic field. AI-powered gaming has seen remarkable progress, thanks to machine learning algorithms, neural networks, and data-driven techniques. Game developers are now able to create more immersive and adaptive gaming environments through AI-driven content generation, procedural storytelling, and dynamic world-building. AI-driven NPCs (Non-Player Characters) exhibit lifelike behaviour, responding intelligently to player actions, thus enhancing realism and player engagement. AI also plays a crucial role in game testing and quality assurance. Automated testing systems, driven by AI algorithms, can simulate thousands of player scenarios, identify bugs, and optimize game performance. This significantly reduces development time and enhances game stability, ensuring a smoother gaming experience for users.

INTRODUCTION

Artificial Intelligence (AI) has revolutionized the gaming industry, transforming the way games are developed, played, and experienced. In this introduction, we'll explore the profound impact of AI in gaming, highlighting how it enhances gameplay, enables dynamic storytelling, and revolutionizes game design.

AI in gaming refers to the use of advanced algorithms and computational techniques to create intelligent, responsive, and adaptive virtual characters, environments, and gameplay experiences. This technology has evolved significantly over the years, allowing game developers to craft more immersive and engaging worlds that blur the line between fiction and reality.

Key aspects of AI in Gaming

- Character Behavior:** AI is used to create non-player characters (NPCs) that opponents or allies. These NPCs can adapt to the player's actions, learn from their mistakes, and offer a dynamic and engaging gaming experience.
- Procedural Content Generation:** AI algorithms can generate game worlds, levels, and assets on the fly, reducing the need for manual content creation. This not only saves time but also results in more diverse and expansive game environments.
- Realistic Physics and Animation:** AI-driven physics engines and animation systems simulate realistic movements and interactions within the game world. This adds a layer of authenticity to



AutoML and Automated Machine Learning Pipelines

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ABSTRACT:

Automated Machine Learning (AutoML) has emerged as a transformative technology that streamlines the process of developing machine learning models. This paper provides an overview of recent advancements in AutoML, techniques and automated machine learning pipelines. We discuss the fundamentals of AutoML, components of automated machine learning pipelines, state-of-the-art platforms and frameworks, challenges and limitations, future directions, and practical applications. Furthermore, we navigate through the labyrinth of state-of-the-art AutoML platforms and frameworks, ranging from Auto-Sklearn to H2O AutoML and Google AutoML, unraveling their features, capabilities, and real-world applications. Through a meticulous examination of these platforms, we uncover the democratizing force of AutoML, which empowers both novice and seasoned practitioners to harness the power of machine learning without being encumbered by the complexities of traditional model development. Through this comprehensive review, we aim to provide insights into the current state of AutoML, research and its implications for the future of machine learning.

Keywords:

1. AutoML
2. Automated Machine Learning
3. Machine Learning Pipelines
4. Hyperparameter Optimization
5. Model Selection
6. Feature Engineering
7. Auto-Sklearn
8. H2O AutoML
9. Google AutoML
10. Neural Architecture Search (NAS)
11. Domain-Specific AutoML
12. Scalability
13. Interpretability
14. Federated Learning
15. Ethical Considerations

1. Introduction

Automated Machine Learning (AutoML) represents a significant leap forward in the field of machine learning, offering a transformative approach to model development. Traditionally, building machine learning models involved a labor-intensive process that required domain expertise, computational resources, and a deep understanding of various algorithms and techniques. However, the advent of AutoML has revolutionized this paradigm by automating many aspects of the model development pipeline.

Background and Motivation for AutoML:

The rapid growth of data and the increasing demand for machine learning applications across industries have underscored the need for efficient and accessible model development tools. AutoML addresses this need by automating key tasks such as feature engineering, hyperparameter optimization, and model selection, thereby democratizing the process of building machine learning models. By reducing the barriers to entry and empowering users with limited expertise to leverage the power of machine learning, AutoML has garnered significant interest from both academia and industry.

LUNG DISEASE DETECTION USING DEEP LEARNING

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DOI : <https://www.doi.org/10.56726/IRJMETSS8364>

ABSTRACT

The goal of our project is to predict lung disease detection using deep learning. Lung diseases such as COVID-19, Pneumonia, and tuberculosis have become a significant health concern globally, and detecting these diseases in their early stages can significantly improve patient outcomes. However, traditional methods for disease detection can be time-consuming, costly, and limited by the availability of skilled radiologists. Therefore, we aim to develop a deep learning model using the VGG16 architecture that can accurately detect and classify these three common lung diseases from chest X-ray images. We will use large published datasets to train and evaluate the performance of our model, and compare it to existing methods for lung disease detection. Our ultimate objective is to contribute to the ongoing efforts in improving the efficiency and effectiveness of lung disease detection, especially in areas with limited medical resources or expertise. Our detection and classification models provide impressive results with 93% to 100% accuracy, precision, recall, and F1-measure, which could assist healthcare providers in making informed decisions for patient care and disease control.

Keywords: COVID-19, Pneumonia, Tuberculosis, VGG-16, Chest X-rays

I. INTRODUCTION

The prevalence of lung diseases such as COVID-19, Pneumonia, and tuberculosis has posed a significant threat to global health. Early detection of these diseases is crucial for effective treatment and prevention of their spread. However, the traditional approach of detecting lung diseases through radiological examination by human experts is time consuming, costly, and limited by the availability of skilled radiologists. Therefore, there is a growing interest in exploring the potential of using deep learning models to detect and classify lung diseases from medical images such as chest X-ray images.

The objective of this project is to develop a deep learning model using the VGG16 architecture that can accurately detect and classify three common lung diseases: COVID-19, Pneumonia, and tuberculosis. We will use large published datasets to train and evaluate the performance of our model in terms of accuracy, precision, recall, and F1-measure. We aim to contribute to the ongoing efforts in improving the efficiency and effectiveness of lung disease detection, especially in areas with limited medical resources or expertise. By providing a reliable and automated tool for disease detection, we hope to assist healthcare providers in making more informed decisions.

Objectives:

- 1.To develop a deep learning model that can accurately detect and classify lung diseases from chest X-ray images. measure.
2. To evaluate the performance of the deep learning model in terms of accuracy, precision, recall, and F1
3. To compare the performance of the deep learning model with existing methods for lung disease detection, such as traditional machine learning approaches or human radiologists.
4. To explore the potential of using deep learning in improving the efficiency and effectiveness of lung disease detection, especially in areas with limited medical resources or expertise.
5. To contribute to the ongoing efforts in fighting against lung diseases, especially COVID-19, by providing a reliable and automated tool for disease detection.

SIGN LANGUAGE INTERPRETER USING MACHINE LEARNING

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ABSTRACT

Sign language is the only tool of communication for the person who are not able to speak and hear anything. This project aims to develop a sign language interpreter system using machine learning techniques. The system will capture hand gestures and movements through a camera and translate them into text. Machine learning algorithms are used to recognize and classify the hand gestures and movements, which will be mapped to corresponding words or phrases. The project will involve collecting and annotating a large dataset of sign language gestures, training and fine-tuning a deep learning model, and building a user-friendly interface for the interpreter system.

Keywords: Machine Learning, Hand Sign Recognition, Image Processing.

I. INTRODUCTION

Sign Language is the primary means of communication for the deaf and hard of hearing. However, communication between deaf and hearing people can be a challenge. Normal people face difficulty in understanding the sign language. Hence there is a need of a system which recognizes the different signs, gestures and conveys the information to the normal people. To address this issue, we propose a Sign Language Interpreter using Machine Learning techniques. The system uses a camera to capture the sign language gestures and translates them into spoken or written language for the hearing person. The project has the potential to improve communication and accessibility for the deaf and hard of hearing, and reduce the communication barriers.

For a sign language interpreter project, the ideal background would be a plain, solid-colored background with good lighting. A solid-colored background can help to reduce distractions and make it easier for the computer vision system to detect the hands and facial expressions of the signer. Good lighting is also important to ensure that the colors of the signer's hands and face are accurately captured by the camera. A green screen background can also be used, which can be useful for removing the background entirely and replacing it with a virtual background.

II. METHODOLOGY

The methodology for building a sign language interpreter typically involves several steps:

- 1) Data Collection:** The first step is to collect a large dataset of sign language gestures. This may involve recording videos of people performing different signs, or using pre-existing datasets.
- 2) Data Preprocessing:** The collected data needs to be preprocessed to extract the key features that will be used for recognition. This may involve techniques like segmentation to isolate the hand and arm, and normalization to ensure consistency across different recordings.
- 3) Feature Extraction:** Once the data has been preprocessed, the next step is to extract the relevant features that will be used for recognition. This may include factors like hand shape, orientation, and movement.
- 4) Training a Model:** With the features extracted, the next step is to train a machine learning model to recognize different signs. This may involve using techniques like support vector machines, neural networks, or decision trees.
- 5) Testing and Validation:** Once the model has been trained, it needs to be tested and validated on a separate dataset to ensure that it is accurate and reliable. This may involve techniques like cross-validation or holdout testing.

A Survey Of Enabling Secure And Scalable Healthcare Data Exchange Through Distributed Computing

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Abstract- *The healthcare industry is undergoing a transformation driven by the increasing digitization of patient records, the proliferation of medical devices, and the need for efficient data sharing among healthcare providers.*

Distributed computing solutions offer a promising approach to address the challenges of managing and exchanging healthcare data securely and at scale. In this paper, we present a comprehensive framework for the implementation of distributed computing in healthcare systems. Our approach combines the benefits of distributed data storage, real-time processing, and secure communication to enable healthcare data exchange and analytics in a seamless and efficient manner. The healthcare industry is experiencing a digital revolution driven by the increasing adoption of electronic health records, medical devices, and the need for seamless information exchange among healthcare providers. In this dynamic landscape, distributed computing solutions offer a compelling framework for addressing the intricate challenges of modern healthcare. This paper presents a comprehensive exploration of how distributed computing technologies are reshaping healthcare systems by providing essential features such as data scalability, real-time analytics, and security, while fostering interoperability. We examine the foundational principles of distributed computing, including distributed data storage, security protocols, and interoperable standards that contribute to a more agile and efficient healthcare ecosystem.

Furthermore, we delve into real-world applications, illustrating how distributed computing enhances clinical decision support, enables predictive analytics, and empowers personalized patient care. By investigating the practical implementations and impact of distributed computing in healthcare, we showcase the potential for substantial improvements in patient outcomes, cost-efficiency, and medical research. As the healthcare industry continues to embrace digital transformation, understanding the pivotal role of distributed computing becomes imperative for healthcare organizations striving to deliver optimal patient care in an interconnected, data-driven world. This abstract introduces

the main themes and contributions of a paper focusing on the role of distributed computing in the rapidly evolving field.

I. INTRODUCTION

Healthcare in distributed computing represents a transformative approach to the delivery of medical services and the management of healthcare information. Distributed computing refers to a network of interconnected, geographically dispersed computers and devices that work together to perform tasks, share data, and support healthcare services. This paradigm shift in healthcare is driven by the need for more efficient, accessible, and secure healthcare solutions. The integration of distributed computing in healthcare offers numerous advantages. It enables healthcare professionals to access patient data and medical records in real-time from various locations, facilitating quicker diagnoses and treatment decisions. Additionally, it allows for collaborative care by connecting specialists, general practitioners, and other medical professionals, even when they are not physically present in the same location. The introduction of distributed computing in healthcare has also led to advancements in telemedicine and remote monitoring, making it possible for patients to receive quality healthcare services from the comfort of their own homes. Moreover, the integration of distributed computing can support medical research, clinical trials, and epidemiological studies by processing and analyzing vast datasets efficiently. In summary, healthcare in distributed computing is revolutionizing the way medical services are delivered, promoting accessibility, collaboration, data security, and efficiency. This innovative approach holds great promise in enhancing patient care, improving healthcare outcomes, and advancing medical research in a rapidly evolving digital age.

TELEMEDICINE AND REMOTE PATIENT MONITORING:

Discuss the role of distributed computing in enabling telemedicine and remote patient monitoring. Explore the technologies, protocols, and infrastructure that support virtual healthcare delivery.

The screenshot shows a web browser window with the URL `researchgate.net/publication/288433869_Fault_data_aggregator_recovery_process_in_wireless_sensor_networks`. The page displays the article title "Fault data aggregator recovery process in wireless sensor networks" and its publication details: "January 2014 · International Journal of Applied Engineering Research 9(17):3863-3872". The authors listed are K. Abinaya and D. Manivannan. A prominent blue button labeled "Request full-text PDF" is visible, with a subtext: "To read the full-text of this research, you can request a copy directly from the authors." Below the authors' names are buttons for "Download citation" and "Copy link". The browser's taskbar at the bottom shows the Windows search bar and various application icons, with the system clock indicating 13:50 on 27-12-2024.

This screenshot shows the "Download citation..." dialog box on the ResearchGate website. It allows users to select the file format and download options. Under "What type of file do you want?", the "RIS" option is selected. Under "What do you want to download?", the "Citation only" option is selected. A "Citation preview" window displays the following text: "TY - JOUR", "AU - Abinaya, K.", "AU - Manivannan, D.", "PY - 2014/01/01", "SP - 3863", "EP - 3872", "T1 - Fault data aggregator recovery process in wireless sensor networks", "VL - 9", "JO - International Journal of Applied Engineering Research", "FD -". At the bottom of the dialog are buttons for "Copy to clipboard" and "Download". The browser's address bar shows the URL `researchgate.net/publication/288433869_Fault_data_aggregator_recovery_process_in_wireless_sensor_networks/citation/download`. The system clock at the bottom right shows 14:17 on 27-12-2024.

BITCOIN PRICE PREDICTION USING MACHINE LEARNING

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ABSTRACT

The goal of our project is to predict the future price of Bitcoin using Machine Learning algorithms. The project will utilize historical data from the Coin Market cap API to build a predictive model. The Model will be trained using a variety of techniques such as Linear Regression, Decision trees, Support Vector Machines and Neural Networks. The Bitcoin System is a set of decentralized nodes that run the bitcoin code and store its blockchain. The results of the model will then be compared to actual market prices in order to assess the accuracy of the predictions. Finally the project will provide insight into the most effective machine learning techniques for predicting the future price of Bitcoin.

Keywords: Bitcoin Price Prediction, Linear Regression, Decision Trees, Support Vector Machines And Neural Network.

I. INTRODUCTION

Bitcoin is a popular cryptocurrency that has seen significant growth in recent years. Its highly volatile nature makes it challenging for investors and traders to make informed decisions about when to buy or sell. However, machine learning algorithms can be used to analyze historical data and make predictions about future price trends. Machine learning involves training models to recognize patterns in data and make predictions based on those patterns. In the context of Bitcoin price prediction, this means collecting and preprocessing historical data on Bitcoin prices and identifying relevant features that may impact future prices. Machine learning models can then be trained on this data and used to make predictions about future prices based on new data. The accuracy of these predictions depends on a range of factors, including the quality and quantity of data used, the features selected, and the complexity of the model. It is important to note that these predictions are not foolproof and should not be the sole basis for investment decisions. Overall, the use of machine learning for Bitcoin price prediction has gained significant attention in the cryptocurrency industry. It can provide valuable insights into future price trends and help traders and investors make more informed decisions. However, it is important to approach these predictions with caution and use them as part of a broader investment strategy.

II. METHODOLOGY

Data preparation, also known as data preprocessing, is a crucial step in the machine learning pipeline. It involves Transforming raw data into a format that can be easily fed into a machine learning model for analysis. The goal of data preparation is to clean, transform, and reformat data to remove any errors, inconsistencies, or outliers that might negatively impact the performance of the machine learning model.

Here is some common data preparation techniques used in machine learning:

1. **Data cleaning:** This involves identifying and correcting errors in the data, such as missing values, inconsistent values, and outliers.
2. **Data normalization:** This involves scaling the data so that all features are on the same scale. Normalization is important because it can improve the performance of certain machine learning algorithms.
3. **Data transformation:** This involves transforming the data into a format that is suitable for a particular machine learning algorithm. For example, if the algorithm requires categorical data, we might need to convert numerical data into categorical data.

ONLINE SUPERMARKET SYSTEM USING QR SCAN

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ABSTRACT

This project aims to develop This web application is designed for an online supermarket where users can easily shop for their groceries by scanning the QR codes on the products. The application has been developed to enhance user experience and make shopping hassle-free. The primary feature of the web application is the ability to scan the QR code of the product to add it to the user's cart. The user can then view the products added to the cart and proceed to checkout. The application has also been developed to indicate if a product has an expiry date. There are two points where the application will indicate if a product has an expiry date. Firstly, when the user scans the QR code of the product, the application will display the expiry date if it is available. Secondly, when the user views the cart, the application will display a warning message if any of the products in the cart have expired or are expiring soon. Another key feature of the application is its ability to generate a bill for the user based on the products added to the cart. The user can view the bill before proceeding to checkout to ensure that they are satisfied with their purchases. Overall, this web application provides a user-friendly

and convenient shopping experience for users who prefer to shop online. The QR code scanning feature saves time and eliminates the need to manually search for products, while the expiry date warning ensures that users only purchase fresh products.

INTRODUCTION

In this project every customer can bill their products by themselves and can know the availability of the products from their location and order the product by online and can bill their products without standing in queue. Every user can bill their products without standing in the queue by scanning their products in the application using their mobile phones bar scanner. This will also help the user to know the expiry date of an product using the QR scan.

NATURAL DISASTER ANALYSIS AND CLASSIFICATION USING MACHINE LEARNING

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ABSTRACT

"Natural disasters cannot be prevented — but they can be detected." Climate-related disaster impacts within secondary cities of the Global South can severely constrain household access to basic resources and services in these cities. The loss of consistent household access to these services and resources can subsequently increase household vulnerability to further climate disaster impacts. This project aims to develop a machine learning model that can accurately analyze and classify natural disasters, such as hurricanes, earthquakes, and floods, using available data sources. The proposed methodology includes data preprocessing, feature engineering, and using a machine learning algorithm. The key results of the project include the identification of the most critical features that influence the classification of natural disasters and the development of a machine learning model that can accurately classify disasters with high accuracy. The performance of the model is evaluated using standard evaluation metrics such as accuracy, precision, recall, and F1 score. Based on these results, we conclude that the developed model can provide an efficient and effective solution for the automatic analysis and classification of natural disasters. This approach has the potential to assist first responders and emergency management personnel in making informed decisions during natural disasters.

Keywords: Natural Disaster, Prediction, Machine Learning, Data Preprocessing.

I. INTRODUCTION

Over the last decade, more than 2.6 billion humans have suffered from catastrophic disaster outbreaks such as tsunamis, floods, earthquakes, cyclones and landslides, and various pandemics. Disasters have been the cause of several fatalities in the past, one of the deadliest disasters was an earthquake in New Guinea which left around 58, 300 people displaced according to the displacement tracking matrix (DTM). The floods that took place in China in July 1931, caused 4, 000, 000 deaths that are yet the highest number of deaths from a natural disaster. The effects of natural disasters and environmental change are a globally prevalent issue due to rising temperatures, deforestation, and loss of biodiversity that increase alongside the rapid growth of the global human population. For most developing countries. Disasters are usually physical environmental changes. Disasters can be either natural or man-made . Such situations are spontaneous and complex, risking human lives, the environment, and the economy of a country. Therefore, any nation would like to opt for the most efficient and accurate algorithms to control such ordeals. The methodology used to predict the foreseen consequences of a disaster with more accurate predictions and understanding, we can utilize our resources more efficiently. The advances in computer science have made available a large volume of data for disaster management authorities. To date, many people suffered greatly because of the lack of a proper disaster The systems developed for assisting with disaster prediction need to be robust enough to handle the challenges that can affect a disaster management system.

Machine learning (ML) has recently emerged as one of the key computing technologies and is increasingly being applied in day-to-day life, and various industrial domains [10]. ML is an application of artificial intelligence (AI) that uses algorithms that work on characteristics of available data to make further predictions. Nowadays, in the era of various other emerging technologies such as UAV (Unmanned Aerial vehicles), IoT (Internet of things), and satellitebased technology, the network is becoming more autonomous. Such systems require



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KINGS STUDENT APPLICATION USING ADVANCED TECHNIQUES

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ABSTRACT

The Kings student application - provides a complete On-Line solution for your college administration. Student Information, Online Results, Quotation Paper, Online Attendance are the main modules of our College Management Systems. Dynamic and highly motivated, with a liberal & modern outlook on education and organization and a contemporary vision and working style, Educational Management are trying to incorporate modern concepts, amenities & system to create a forward and vibrant institute, comparable with best & most modern in country.

Educational Management Would is able to manage student personal information, Education statistic and highlight achievement and awards. New admission Would is easy. Fee collection of the students is a cumbersome task and there would be a system in place to monitor the fee collection and report to the account department on regular basis. Finally account department to manage, monitor and generate all account detail during the operation of Educational management.CMS is a comprehensive system that addresses all functional requirements that can be implementing in operator of College management. Below modules, which scope the entire operational requirement of any College Management System.

Keywords: Kings Student, Information, Attendance.

I. INTRODUCTION

The Information System literature strongly suggests that planning for distributed information systems should be centralized. The planning activity should be a top down process developed from the business planning and information system planning activities.

A model of information system architecture should be developed which would serve as the basis for the management and control of information systems resources throughout the organization. Information system architecture is an enterprise-wide design or plan of the collective information systems and technologies used by the firm, it serves two purposes. It is the basis of planning for the future development of the information systems of the college management and it serves to document the current state of the information systems. In actuality, an organization should maintain a set of models of information system architectures. One model should document the current state of the firm's information systems. One model should be target architecture for the organization.

Models are intermediary between these two models should exist which serve to define the planned progress of the development and evaluation. of such models is needed.

A model base suitable for this environment must first be developed. In order to evaluate modeling frameworks which might serve as a model base for such a system? College management software is prepared to maintain the day to day operations in a leading college. This software helps them to maintain the student and employee records. So the maintain becomes easier. Multiple Subjects of College Information Management System Estimate In each of the categories there are very specific mechanisms which must exist in a model of information system architecture.

Measuring scales are developed in order to record whether or not the model meets the criteria in each category. For some conditions a natural scale exists and is used as a measurement. In all other areas a binary scale is used. In the case of the binary scale, a zero indicates that the model does not meet that condition, and a one indicates that the condition is met.

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MULTIPLE DISEASE PREDICTION SYSTEM USING MACHINE LEARNING

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ABSTRACT

Artificial intelligence and machine learning play a significant part in today's society. We can find them everywhere, from autonomous vehicles to the medical industry. Patient data generated by the medical sector is produced in enormous quantities and is processed in numerous ways. Hence, using machine learning, we were able to develop a prediction system that can identify multiple diseases simultaneously. Several of the currently used methods are only able to predict one disease at a time, and that too with reduced accuracy. Poor accuracy can pose a major threat to a patient's health. Heart, liver, and diabetes are the three ailments we are now thinking about, but there may be many more added in the future. The system will output if the user has the disease or not when the user enters several disease-related parameters. Many people can benefit from this project because it allows for the monitoring of a person's health and the taking of the necessary actions to prolong life.

Keywords: Healthcare, Clinical Decision Support, Artificial Intelligence, Deep Learning, Machine Learning, Diseases Diagnosis, Medical Image Processing.

I. INTRODUCTION

Data is a valuable resource in this digital age, and vast amounts of data were produced across all industries. All patient-related data is included in the healthcare sector's data. Here, a general architecture for disease prediction in the healthcare sector has been put out. Several of the current models focus on just one disease for each analysis. One analysis, for example, might be performed for skin illnesses, cancer, and diabetes. There isn't a mechanism in place that can analyze multiple diseases at once. As a result, we are focusing on providing users with rapid and precise disease predictions based on the symptoms they enter. Hence, using Django, we propose a method that may be used to forecast various diseases. We will examine the diseases of malaria, diabetes, and the heart in this system. Later, many more illnesses could be added. We'll utilize machine learning techniques and Django to put numerous disease prediction systems into action. In order to preserve the model's behavior, Python pickling is employed. The significance of this system analysis is that it considers all the factors that contribute to the development of the diseases under study, making it possible to detect them more effectively and precisely. A python pickle file will be used to store the behavior of the final model.

II. METHODOLOGY

A multiple disease prediction system using machine learning methodology could be built using supervised learning algorithms such as Support Vector Machines (SVM), Decision Trees, and Random Forests. The system would be trained on a dataset containing medical records of patients with various diseases. Features such as patient age, gender, medical history, lifestyle, and environmental factors would be used as inputs to the model. After the model has been trained, it can be used to predict which disease a patient is likely to have based on the available data. The model can also be used to identify risk factors associated with a particular disease in order to help diagnose and treat it. The system could also utilize natural language processing to analyze text documents and extract relevant features. Finally, the system could use deep learning algorithms, such as convolutional neural networks, to identify complex patterns in large-scale medical data. Due to its correlation, we conducted experiments on three diseases: heart, diabetes, and liver. The first step is to import the UCI dataset, PIMA dataset, and Indian liver dataset, respectively, for the datasets for heart disease, diabetes disease, and liver disease. After the dataset has been loaded, each inputted piece of data is visualized. Following pre-processing the data for visualization, which involves looking for outliers, missing values, and scaling the dataset, the data is divided into training and testing. Subsequently, we used the knn, xgboost, and random forest algorithms on the training dataset before applying what we learned about the classification method to the



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AI BASED SMART VIDEO PLAYER USING FACE RECOGNITION

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ABSTRACT

The Smart AI based video Player with face recognition is a Cutting edge technology that allows was to enhance their video viewing experience. It uses artificial intelligence to detect and recognize human faces in a video and Provides Personalized based on viewers Profile. The face recognition algorithm analyzes facial expressions, gender, age and ethnicity to provide a highly personalized video playback experience. It also offers real time facial expression analysis to provide viewers with an immersive experience including the ability to Pause, rewind and fast forward video playback. This technology Promises to revolutionize the way.

Keywords: Face Recognition, AI, Video Player.

I. INTRODUCTION

The objective of this project is to make an application which will control by the face and eyes of the person like : Pause video when person close his both eyes. Play video when person's eyes are open. Stop video when there is no person in front of the camera. Resume video when person open his eye. Next video when previous video is finished. Resume video from previous position, if person wants to resume his previous video. Close the application when person is not came in front of camera for a long interval.

II. METHODOLOGY

This video player can use facial recognition to detect the age of the user and restrict access to inappropriate content for children. This video player can use facial recognition to detect when the user is no longer watching the video and pause it automatically. It can also resume playback once the user returns to the video.

Proposed system :

We are using Viola Jones method for face detection. It is available in Open CV library. The goal is to distinguish faces from non-faces. For eye detection we are using same face detection technique but with different classifiers. The algorithm has four stages:

- ☐ Haar Feature selection
- ☐ Creating an Integral Image
- ☐ Adaboost Training
- ☐ Cascading Classifiers

Existing system:

The video player can use facial recognition to analyze the user's mood and generate playlists based on their emotions. For example, if the user is feeling sad, the video player can generate a playlist of motivational videos to uplift their mood. The AI-powered video player can analyze the viewing habits of users and recommend personalized video content based on their preferences. The recommendations can be generated based on the user's face recognition profile and their viewing history.

System requirements:

H/W System Configuration :

- Processor - Pentium -IV
- RAM - 4 GB (min)
- Hard Disk - 20 GB

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CYBER BULLYING DETECTION ON SOCIAL MEDIA USING MACHINE LEARNING

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ABSTRACT

Now a days peoples use Social media to create, share and exchanges information and ideas in virtual communities and network. The followings are Instagram, Face book, Twitter etc. As the technology the cyber balling is also enhanced. The online harassment, defame a person with bad words in fake id. so we build a website to detect cyber bullying by analyzing the emotional content of text. It uses a dataset of online conversations to train and test a model that classifies text as either cyber bullying or non-cyber bullying. The model uses natural language processing techniques such as sentiment analysis and topic modeling to identify patterns of abusive language and offensive content. The model's accuracy is evaluated using precision, recall, and F1 score, and is found to be effective in detecting cyber bullying with an accuracy of 87%. The results suggest that emotion analysis can be an effective tool for detecting cyberbullying and may help identify and prevent harmful behavior online.

Keywords: Machine Learning, Social Media, Natural Language Processing, Text Classification.

I. INTRODUCTION

Now more than ever technology has become an integral part of our life. With the evolution of the internet. Social media is trending these days. But as all the other things misuses will pop out sometimes late sometime early but there will be for sure. Now Cyber bullying is common these days. Use of social networking has become widespread over the years, though, in general people find immoral and unethical ways of negative stuff. Often this internet fight results into real life threats for some individual. Some people have turned to suicide. It is necessary to stop such activities at the beginning. Any actions could be taken to avoid this for example if an individual's tweet/post is found offensive then maybe his/her account can be terminated or suspended for a particular period. There are so many other reports suggested us that the impact of Cyber bullying is affecting badly the peoples and children between age of 13 to 20 face so many difficulties in terms of health, mental fitness and their decision making capability in any work.

II. METHODOLOGY

Cyber bullying detection is solved in this project as a binary classification problem where we are detecting two majors form of Cyber bullying hate speech on Twitter and Personal attacks on Wikipedia and classifying them as containing Cyber bullying or not. Natural Language Processing techniques are used using Natural Language Toolkit do detect Cyber bullying. Feature extraction is important for Natural Language Processing. Text a data can not be classified by classifiers therefore they need to be converted to numerical data. The Bow that is bag of words model is a simple method of extracting features from documents that uses occurrence of words within a document. Unigram model where single words and Bigram model uses two words and N-gram model is the generalized.

Proposed system:

- Natural Language Processing techniques
- Support Vector Machine(SVM)
- Logistic Regression
- Random Forest.

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[10182]

IOT BASED HOME AUTOMATION TIMER AND SENSORMs. N. Dhamayandhi^{*1}, Ms. B. Bavithra^{*2}, R.V. Atchaya^{*3}, M. Balamurugan^{*4},R. Boomika^{*5}, C. Arunodhaya^{*6}, S. Deepan^{*7}, S. Vijay^{*8}^{*1-2}Assistant Professor, Computer Science And Engineering, Kings College Of Engineering, Punalkulam, Pudukkottai (DT), Tamil Nadu, India.^{*3-8}Student, Computer Science And Engineering, Kings College Of Engineering, Punalkulam, Pudukkottai (DT), Tamil Nadu, India.DOI : <https://www.doi.org/10.56726/IRJMET558360>**ABSTRACT**

The IoT (Internet of Things) based home automation systems have become increasingly popular in recent years. These systems use sensors and timers to automate different tasks and improve the efficiency of a home. The basic idea is to connect various home appliances and devices to the internet, so that they can be controlled and monitored remotely. Timers are used to control the lighting and temperature of a home, as well as other tasks such as watering the garden, switching off appliances when not in use, and so on. Sensors are used to detect changes in the environment and trigger action, such as turning on lights when someone enters a room or adjusting the heating or cooling system based on the temperature inside the home. Overall, an IOT based home automation system can help to improve the comfort and convenience of a home while also reducing energy consumption and saving money on utility.

Keywords: IOT, Home Automation, Sensor Control Systems.**L. INTRODUCTION**

The Home automation" refers to the automated and electronic management of home options, activities, and appliances. The utilities and options of our home will be simply controlled via the web. There are 3 main components of a home automation system: sensors controllers, and actuators. Having every day developing technology could be a proud moment for the full world. The foremost aim of the technology is to extend potency and reduce the hassle. During this trending world, the web of Things is being given extreme importance. In that, Automation results in less effort and a lot of potency. By exploitation IoT, we tend to a flourishing in dominant the appliances in numerous areas, that during which within which one in all which is to regulate the house automation by exploitation Node Micro controller. We will conjointly use alternative boards like raspberry pi, hound dog bone, etc., In current technology, the full work is finished through communication therefore the effective means of communication will be done through voice. The speech given by the user are given as input to the mike. Mike acknowledges the speech given by the person and sends it to the recognizing module. It searches for the closest word although there are any disturbances in it. If the command (ON/OFF) is given, the action is finished. Similarly, the road following the automaton functions regarding the speech commands given there to house is the place wherever one want is to rest once an extended exhausting day. Individuals click exhausted once an extended hard- working day. Some means too tired that they realize it exhausting to maneuver once they land on their couch, sofa, or bed. So, any little device/technology that will facilitate them switch their lights on or off, or play their favorite music, etc. on a associate with their voice with the help of their smart phones would create their home more leisurely.



AN IMPROVED MENTAL HEALTH PREDICTION USING MACHINE LEARNING**Ms. D. Mangalambigai¹, Mr. S. Rajarajan², D. Parkavi³, Vinthiya.M⁴,****K. Kayalvizhi⁵, M. Vasinya⁶, A. Jeni Vinnarasi⁷, P. Yokeshwari⁸**^{1,2}Assistant Professor, Department Of Computer Science And Engineering, Kings College Of Engineering, Punalkulam, Pudukkottai(Dt),Tamil Nadu, India.^{3,4,5,6,7,8}Student, Department Of Computer Science And Engineering, Kings College Of Engineering, Punalkulam, Pudukkottai (Dt),Tamil Nadu, India.DOI : <https://www.doi.org/10.56726/IRJMET558368>**ABSTRACT**

The objective of this paper is to apply machine learning and visual processing to identify overworked IT employees. Our technology is an improved version of older stress detection systems that did not include live detection or personal counseling. Stress detection methods that don't include real-time monitoring or individual counseling are being updated in this research. A survey is used to collect data on employees' mental stress levels in order to provide effective stress management solutions. In order to get the most out of your employees, this paper will look at stress management and how to create a healthy, spontaneous work environment.

Keywords: Software Defect Datasets, Relief Based Clustering, Diagnose Problems, Feature Selection.

I. INTRODUCTION

To be competitive, the IT industry is continually launching new items and services. Further more, employees' stress levels have increased over the past year, according to this poll. The problem exists, despite the fact that many firms provide mental health benefits to their personnel. We'll start by looking at the stress levels of employees in the workplace. Images and machine learning will be used to examine stress patterns and pinpoint the most important factors that influence individual stress levels. According to the WHO, stress is a mental disease that affects one out of every four voters. Mental and social issues, a lack of openness in the job, a loss of faith in coworkers, and even death are just a few examples. Counseling is beneficial to people who are under a lot of stress. If we don't take precaution stop control stress, societal and economic systems may be affected. Preventative interventions can assist to lessen the harmful repercussions of stress.

These days, it aims at providing new technology and items to the economy in order to provide a fresh perspective. The strain levels in employees were found throughout this study, which raised the standard high [12].

Questionnaires are routinely used in the field of stress research to get insight into overall working experiences, but little is known about the immediate consequences of stressors at work [10]. There will be a hesitation on the side of people to declare whether or not they are worried. Traditional techniques of evaluating workplace stress levels included asking employees to fill out a survey [18]. To get the paperwork to the receiver, the sender had to put in a lot of time and effort [7]. Employers who use the Stress Detection System can better prepare their employees to deal with stressful events before they occur. While office workers are concentrated on their task, stress identification might sometimes imply distinguishing between a 'stressed' and a 'relaxed' condition [20]. Employees' headshots are taken, and survey questionnaires are given to them that are similarly standard in style and layout. Physical exertion is reduced, which saves both time and money [27]. This organizational strategy can assist relieve employee stress by using our painstakingly developed questionnaire. The usage of stress monitoring software can improve both the well-being of society and the health of individuals. It is consequently necessary to develop scientific technologies that can analyse physiological data and automatically estimate stress levels in humans [21]. Obesity, heart attack, diabetes, asthma, and other health complications may arise as a result of stress. Hourly, a student in a different section of the country commits suicide.

SOFTWARE DEFECT PREDICTION USING RFC

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ABSTRACT

This era has grown up with new technology such as mobile phones, tablets and laptops. In our day to day lives, we're often related to those technologies for many specific purposes. Apps and software program have become increasingly vital in our lives in recent times. We download applications and software to access digital information, play games, learn languages and communicate with each other. They may bugs/ defects which is essential to predict before deploying them to the market. Many people are progressively laid low with software program downloads, and users waste no time in the use of software program after they find working and non-working troubles. Software flaws can result in catastrophic damage. Diagnose the problem to present a danger to restore the bug earlier than the usage of it. In order to accurately predict in new software, software defect prediction(SDP) is used to evaluate the previous defect data and determine the distribution rule of historical defects. So that you can efficaciously predict defects in the new software. The duplicate and irrelevant feature in the software defect data sets cause impact in the performance of the defect predictors. RFC uses the k-models approach to divide the features into K clusters, and then it chooses the representative features from each clusters to create the final feature subset.

Keywords: Software Defect Datasets, Relief F Based Clustering ,Diagnose Problem,Feature Selection.

I. INTRODUCTION

Software with defects can bring unexpected results or be hazards at run time, which can cause huge damage or even disasters in serious cases. Software defect prediction (SDP) is an effective method to identify defects in system modules in advance. First, the software code or the development process is analyzed, the metrics related to software defects are designed, and then the defect dataset is the software historical repositories. Finally, based on the defect dataset, the SDP model is constructed. In order to better predict software defects, many metrics that have a strong correlation with software defects are propose to measuremodulesAttributes of software quality, such as defect density and failure rate, areexternal measures of the software product and its development process. The selection of the specific set of metrics becomes an integral component of the modelbuilding process.

II. METHODOLOGY

Identify inputs for an experiment. The experiment was applied on one repository from Ericsson to identify the best performing set of metrics. As this master thesis covers a new family of metrics in SDP, namely test metrics, having a broad set of algorithms from multiple categories were deemed important as the prediction performance of test metrics was unknown.

Data Processing

Data preprocessing is a crucial step in any machine learning project. It involves cleaning, formatting, and transforming the data to make it suitable for analysis and model training. In the case of predicting lung disease detection using deep learning, the following steps can be taken for data preprocessing.

Data collection

In this process to collect a data from kaggle. This kaggle data collection has a only numerical value and in this data using multiple purpose. Kaggle supports a variety of dataset publication formats, but we strongly encourage dataset publishers to share their data in an accessible, non-proprietary format if possible.

ONLINE SUPERMARKET SYSTEM USING QR SCAN

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ABSTRACT

This project aims to develop This web application is designed for an online supermarket where users can easily shop for their groceries by scanning the QR codes on the products. The application has been developed to enhance user experience and make shopping hassle-free. The primary feature of the web application is the ability to scan the QR code of the product to add it to the user's cart. The user can then view the products added to the cart and proceed to checkout. The application has also been developed to indicate if a product has an expiry date. There are two points where the application will indicate if a product has an expiry date. Firstly, when the user scans the QR code of the product, the application will display the expiry date if it is available. Secondly, when the user views the cart, the application will display a warning message if any of the products in the cart have expired or are expiring soon. Another key feature of the application is its ability to generate a bill for the user based on the products added to the cart. The user can view the bill before proceeding to checkout to ensure that they are satisfied with their purchases. Overall, this web application provides a user-friendly and convenient shopping experience for users who prefer to shop online. The QR code scanning feature saves time and eliminates the need to manually search for products, while the expiry date warning ensures that users only purchase fresh products.

Keywords: Online Super Market, QR Scan, Transaction, Smart Phone.

I. INTRODUCTION

In the modern era of digital convenience, the evolution of shopping experiences has shifted dramatically towards online platforms. With the aim of enhancing user convenience and efficiency, this paper presents a pioneering project focused on the development of a web application tailored for the contemporary consumer—an online supermarket with a unique twist. This innovative web application redefines the traditional online shopping experience by integrating QR code scanning technology, simplifying the process of grocery shopping. Users are empowered to effortlessly navigate through a virtual supermarket, selecting products with a simple scan of the QR code. This novel approach not only streamlines the shopping journey but also eliminates the cumbersome task of manually searching for items, revolutionizing the way users interact with online stores. Central to the functionality of this web application is its ability to provide crucial information regarding product freshness. Leveraging real-time data, the application notifies users of product expiry dates at two pivotal junctures – upon scanning the QR code and during the checkout process. By proactively alerting users to expiring or expired products, the application ensures that consumers make informed decisions, prioritizing freshness and quality in their purchases. Moreover, the web application offers a seamless checkout experience by generating itemized bills based on the products added to the virtual cart. This transparent billing process empowers users to review their purchases before finalizing their order, fostering trust and satisfaction in their online shopping experience.

II. METHODOLOGY**1. Requirement Analysis:**

Conduct a comprehensive analysis to identify the key requirements and objectives of the web application. Gather feedback from potential users and stakeholders to ensure alignment with their expectations and needs.

Intrusion detection in big data environment using hybrid deep learning algorithm (VAE-CNN)

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Abstract. In the internet era, billions of devices are connected to the network generates large volume of data and the generation rate increases exponentially every day. As the data increases, the chances for cyber attackers to exploit the data increases which results into numerous security threats to organizations and network. Fast and accurate detection of attacks in big data environment is difficult due to its volume and variety and velocity. Over a decade, numerous attack detection systems are developed using machine learning. However, most of the traditional detection systems cannot recognize the attack types specifically which reduces the detection performances and network performances. Thus, the intrusion detection model presented in this research which incorporates deep variational auto-encoder and convolutional neural network to detect intrusions. Experimentations using benchmark dataset validated the proposed model better performances over existing machine learning techniques like logistic regression, random forest, extreme gradient boosting, k-nearest neighbor, and self-scalable heuristic artificial neural network algorithms using accuracy, recall, precision, and F1-score. The proposed model outperforms with a maximum precision of 97.48%, Recall of 99.52%, F1-score of 98.49% and accuracy of 98.65% over conventional intrusion detection algorithms.

Keywords: Big data, intrusions, denial of service, intrusion detection system, deep learning, auto encoder, convolutional neural network

1. Introduction

The rapid technological development and utilization of smart devices creates massive digital information and these massive data are collectively termed as big data. Large complex structured and unstructured data generated every day and all these data need to be analyzed in short duration. Organizations make use of this big data to obtain faster decisions to improve the operations. Other than individual organizations, various communities like government agencies, industries [1, 2], academicians [3] make use of this big data. Researchers pay more

attention on bigdata and numerous methodologies are presented to mine the useful information from large volume [4]. However, analyzing such big data using conventional data processing applications is quite difficult. The big data characteristics such as volume, velocity, variety, and veracity refer to extreme size of the data, diverse sources, speed and truth or originality. Due to these characteristics analyzing big data is quite challenging process. Though the big data analysis possesses numerous research opportunities, the major factor that need to be focused is its security. From simple data management applications to critical biomedical applications required security factors [5]. As the size of the data increases, the space for intrusions or cyberattacks are huge which affects the data security and privacy. Big data not only increased

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Metaheuristic Optimization Based Energy Aware Clustering Scheme for Wireless Sensor Networks

G. Pushpa and S. Kannan

Wireless sensor networks (WSNs) usually contain several energy-constrained sensor nodes (SNs) to be required to work together for transmitting and collecting data. Clustering methods support organizing these nodes into clusters, with all the clusters having a leader (or cluster head (CH)) responsible for data aggregation and communication with the sink node or base station (BS). Clustering supports decreasing the energy counts utilized for data communication then only CHs transfer directly with BS, aggregating data from its cluster members (CMs). Energy-aware clustering systems are crucial for WSNs because it is a major impact on the network lifespan and performance. Clustering methods are a basic element of WSNs, assisting in optimizer energy consumption, increasing network scalability, and improving entire performances. The best clustering method and parameters rely on the certain requirements of the WSN application and the network features. With this motivation, this study presents a modified cheetah optimization algorithm-based energy-aware cluster approach (MCOA-EACA) for WSN. The purpose of the MCOA-EACA technique is to group the nodes in the WSN into clusters and elect a CH among them to accomplish network longevity. The MCOA-EACA scheme leverages the agility and efficiency of the MCOA, inspired by the hunting behaviours of cheetahs, to address the multi-layered challenges of WSNs. The MCOA-EACA technique also carefully designed an objective function using important parameters of energy, distance, and delay. The experimental values highlight the improved results of the MCOA-EACA technique compared to recent models. Furthermore, the MCOA-EACA technique demonstrates flexibility and efficiency over several aspects, thereby enhancing the network lifetime and boosting the overall performance.

Keywords: Wireless sensor networks, Network lifetime, Cheetah optimization algorithm, Energy efficiency, clustering

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A NOVEL MACHINE LEARNING-BASED MODEL FOR NETWORK ATTACK DETECTION IN CYBERSECURITY USING BIG DATA

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Abstract. The “Internet of Things” (IoT) is widely used, computer networks are expanding quickly, and there are a ton of relevant applications, so cyber security has recently received a lot of attention in terms of current security concerns. The cyber-universe is expanding quickly and steadily, which has led to an increase in software development, data processing, cyber security breaches, and the complexity of defensive tactics. Big data mining methods and cutting-edge machine learning techniques will be the most effective for use in this challenge, taking into account the scale and complexity of the cyber-universe, to forecast brand-new attacks. This is because conventional machine learning (ML) techniques are ineffective against the cyber security problems of today. “Denial of service” (DoS) and “distributed denial of service” (DDoS) assaults are the most often reported attacks against IoT systems. This research examines machine learning-based IoT-based DoS attack detection. Hence, in this paper, we propose a “Self-scalable Heuristic Artificial Neural Network”(SH-ANN) for detecting the attacks in the network. Initially, the big data are collected and preprocessed using decimal scaling normalization. The features are extracted using the Restricted Boltzmann Machine (RBM). Grey-wolf optimizer-based feature selection technique is adopted for selecting the appropriate features. The **suggested** SH-ANN effectively classifies the attack based on the features selected. The proposed system is compared with traditional methodologies to prove the efficacy of our system.

Keywords: cyber security, Big data mining, machine learning, Denial of Service (DoS), Self-scalable Heuristic Artificial Neural Network (SH-ANN), Restricted Boltzmann Machine (RBM), Grey-wolf optimizer-based feature selection.

* For correspondence.

Texture-driven super-resolution of ultrasound images using optimized deep learning model

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ABSTRACT

While comparing to the additional medical imaging modalities, the low resolution (LR) with poor quality images are obtained because of natural intrinsic imaging characteristics. We proposed a novel deep learning-based super-resolution of ultrasound images that are texture-driven. In this study, Convolutional Neural Networks (CNNs) are used to speed up the process to increase the image quality. Additionally, the Dwarf Mongoose Optimization (DMO) method is used to adjust the parameters of CNN thereby improving the quality of the image resolutions. The textures of the super-resolution images are handled using python Histogram of Oriented Gradients (HOG). The experimental works are handled using python software. Super-resolution per second and PSNR/dB values for the proposed model are 0.289 and 42.340, respectively. This model also offers FSO, GMSD, MAD, and MSSIM values of 0.9712, 0.013, 0.9802, and 0.9832 which is relatively higher than the existing techniques.

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Super resolution; ultra sound imaging; Convolutional Neural Network; Histogram of Oriented Gradients; low resolution; texture; CAD diagnosis; deep learning; dwarf mongoose optimization

Introduction

Image enhancement is the most often utilized technique in digital image processing. It is an active topic of research because of the various computer vision-based applications [1]. The ability of computer vision to identify patterns in images, such as those from X-ray, CT, and MRI scans, has the potential to help physicians make quicker and more accurate diagnoses of a wide range of diseases. Deep learning-enabled solutions in this field rely on neural network models that have been trained to classify medical images. Recent image processing is constantly expanding in medical domains for various diagnostic assessments. The investigation of the patient's health status is critical. Various types of medical imagery are used in clinical diagnostics. General medical pictures are made up of various difficult sections [2]. To simplify the issues caused by varying CAD degrees, appropriate pre-processing models are required.

Due to insufficient lighting, medical images lack the fine details required for accurate classification. When a clinical diagnosis is made, a difficult task is set [3]. Magnetic resonance imaging (MRI), chest X-rays, computerized tomography (CT) scans, and others are examples of several sorts of medical images. Object boundary information and pixel intensity variations across various regions are important factors in categorization [4]. To improve the overall quality of the medical image for feature visibility and clinical measurement, contrast enhancement is a key consideration in any subjective

assessment of image quality. Due to its low cost and non-invasive calculations, ultrasound images have started to play a larger role in recent years in terms of medical diagnostic evaluations. However, it cannot be employed in many real-time applications due to its image quality restrictions [5]. Medical images of relatively low resolutions (LR) were created due to technical constraints, and these images did not transmit enough information to evaluate aberrant entities. When compared to all other medical imaging modalities, such as computed tomography (CT), magnetic resonance imaging (MRI), and X-ray, ultrasound images show low-resolution (LR) findings [6].

Additionally, the dynamic artifacts brought on by the movement of sound waves during the scanning procedure also affect US images. Applying the appropriate image-enhancing techniques and increasing the input image resolution is essential for a greater classification rate [7]. The most popular technique for obtaining higher resolution (HR) images from lower resolution (LR) images is super-resolution (SR). Super-resolution is mostly used to improve the quality of a low-resolution image by utilizing a high-resolution counterpart. In order to create an output image that can disclose finer features that were not visible in any of the original low-resolution photographs, the super-resolution research first combined the information content of several low-resolution images.

A significant reconstruction quality, such as high-frequency preservation, may be achieved by texture

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UNIQUE SECURE CRACKING WITH EFFICIENT PATH DETECTION ROUTING TECHNIQUE(Article)

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Abstract

Communication-based applications mainly focus on security and anonymity. In the recent computer world, maintaining the data is extremely troublesome, some interrupts may happen on the local system or network attack. Without security measures, our private data may be exposed to attack. Now a day's several attacks are evolved. One common strategy for attack includes sending huge measure of request to server or site and server will be not able to deal with the request and site will be disconnected for certain days or a few years relies on the attack. In this paper, we discuss a unique secure cracking with an efficient path detection routing technique. This algorithm reduces the attack's effects on anonymity networks. This framework secures communication against adversaries. If the attacker is identified then the server can be saved. This algorithm can allow the attack-free communication nodes; it selects an efficient route for communication that shares the packets in a frequent manner. It provides an easy way to find and communicate nodes in the peer-to-peer network. It increases the attack detection efficiency and minimises communication overhead and packet loss rate. © 2023, Scibelcom Ltd.. All rights reserved.

Author keywords

anonymity network, denial of service attack, efficient path detection routing protocol, node detecting, peer-to-peer communication, security, unique secure cracking technique

Indexed keywords

GEOBASE Subject Index: algorithm, communication network, computer, detection method, routing, security

LEARNING OF ENERGY EFFICIENT AND NETWORK TRAFFIC DELAY IN WIRELESS NETWORKS USING CHANNEL AWARE ROUTING

(2024) *Journal of Theoretical and Applied Information Technology*

Balasubramanian, K., Mariadass, E.P., Akalya, L.

Emotion-driven Activity Detection: Detecting Activities Perception through Facial Feature Analysis in Educational Environments

(2024) *Proceedings of the 18th INDIACom; 2024 11th International Conference on Computing for Sustainable Global Development, INDIACom 2024*

Balasubramanian, K., Kannan, N., Sivakami, S.

Next-Gen Parking Facilities: Deep Learning for Face and License Plate based Access

(2024) *Proceedings of the 18th INDIACom; 2024 11th International Conference on Computing for Sustainable Global Development, INDIACom 2024*

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Improvement of life time for wireless body sensor networks using optimal clustering and routing protocol

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Abstract. Medical advancements are being made in order to extend the lifespan of mankind. In the medical field, the penetration of Wireless Sensor Networks (WSN) can aid doctors in diagnosing patients accurately and prescribing the medications accordingly. In recent times, several people have perished due to ailments such as face makers and it is threatening to life to keep altering this body enhancement as well as it is required to possess a system in place to improve the performance of the Wireless Body Sensors. Transmission loss and route loss are two important elements that will drag the battery energy and minimizes its life span. This research proposes optimal clustering and path selection protocol to enhance the lifetime of wireless body sensor networks. Initially, the data is collected from the body sensor through a clustering method called Glow-worm Swarm Optimization (GSO) and the Fruit-fly technique. The best path is identified by the FFO using the fitness value that is collected. Since hybrid technology is used here, the routing accomplished in the network will be better. The results reveal that the proposed model has improved the sensor life term (95 sec) while compared to the existing methods like PSO with FFO (78 sec), ACO with FFO (77 sec), GA with FFO (76 sec), and LEACH (68 sec) algorithm for 500 nodes.

Keywords: Wireless sensor network, body sensors, clustering, routing protocol, glow-worm swarm optimization

1. Introduction

In Wireless Sensor Network (WSN), each node requires a control source, transceiver, and even micro sensors also governed through the application scope. While WSNs composes of certain intuiting stations like automated and distributed stations, then it can be distinctive that these are qualified as sensing nodes. For the perseverance of finding the defects in a prompt period and for posing the exemplar swing, a dissec-

tion of WSN's which is called Wireless Body Sensor Network (WBSNs) is utilized. This type of WBSNs is used to monitor and accumulates dynamic insignia data from numerous persistent sources before being equipped with specialized measuring equipment such as body temperature, blood pressure, and so on. This results in decreasing the price of medical devices for a long time.

A measurement device which is coupled to sensor (bio-medical) is then methodically located. The sensed data to a base station that is the incarnation, where the core depot is subsequently progress the data for the sink node. Thus, the gathered is furthered for the destination to

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Localization Accuracy in Wireless Sensor Networks Using Machine Learning Predictive Models

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ABSTRACT

Accurate localization is essential for many applications in wireless sensor networks (WSNs), yet it is often challenged by various sources of error. In this paper, we propose a novel approach to enhance localization accuracy by integrating machine learning techniques for error prediction. We present a framework that leverages historical sensor data and localization estimates to train predictive models capable of forecasting localization error. Through comprehensive feature engineering and model training, our approach aims to capture and mitigate the impact of error sources such as signal interference and environmental changes. We evaluate the performance of our predictive models using rigorous validation metrics and demonstrate their effectiveness in improving localization accuracy in diverse WSN environments. Our findings suggest that integrating machine learning for error prediction holds promise for achieving more reliable localization in WSNs, thus paving the way for enhanced performance in various real-world applications.

Keywords: WSN, machine learning, localization error, error prediction

1. Introduction

Wireless Sensor Networks (WSNs) have emerged as a key enabling technology for a wide range of applications, including environmental monitoring, healthcare, smart cities, and industrial automation. In WSNs, accurate localization of sensor nodes plays a crucial role in facilitating tasks such as target tracking, event detection, and data fusion [1]. However, achieving precise localization in dynamic and often harsh environments is a challenging task due to various sources of error, including signal attenuation, multipath propagation, and environmental interference.

Traditional localization techniques in WSNs rely on geometric principles and signal propagation characteristics to estimate the positions of sensor nodes. These techniques, such as triangulation and trilateration, often provide satisfactory accuracy under ideal conditions but are prone to significant errors in practical scenarios. Factors such as signal attenuation, non-line-of-sight (NLOS) propagation, and environmental dynamics can introduce uncertainties that degrade the accuracy of localization estimates [2-4].

To address these challenges and improve localization accuracy, there is a growing interest in integrating machine learning techniques with traditional localization methods. Machine learning offers the potential to learn complex patterns and relationships from data, thereby enabling more robust and adaptive localization models. By leveraging historical sensor measurements and localization data, machine learning algorithms can predict and compensate for localization errors, leading to enhanced accuracy and reliability in WSNs[5].

In this paper, we present a novel approach to enhancing localization accuracy in WSNs by integrating machine learning for error prediction. Our approach builds upon existing localization techniques and extends them by incorporating predictive models capable of forecasting localization errors. We propose a comprehensive framework that encompasses data collection, feature engineering, model training, and evaluation to develop accurate and robust predictive models for localization error [6].

The remainder of this paper is organized as follows: Section 2 provides a review of related work in localization techniques, error analysis, and machine learning applications in WSNs. Section 3 describes the methodology and framework proposed for integrating machine learning with error prediction in WSN localization. Section 4 presents experimental results and performance evaluation of the proposed approach. Finally, Section 5 concludes the paper with a discussion of findings, limitations, and future research directions. Through this work, we aim to contribute to the advancement of localization techniques in WSNs and facilitate the deployment of reliable and accurate WSN systems in diverse application domains.



Micro Wind Power Generation Based on SEPIC Converter

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Abstract

Sustainable energy sources are those that derive from the environment and are renewable. As an alternative to fossil fuels, it is clean. Power outages rise in tandem with rising energy demand. Therefore, constant loads can be supplied by renewable energy sources. This article suggested a system which uses wind energy because it is a very clean source of energy and produces no pollution when in use. The proposed micro wind energy battery storage uses batteries to store energy after it is produced at a cheap cost and maintain power quality. The regulated active and reactive power in the grid is exchanged, and the power quality is maintained, using the suggested micro wind energy conversion system with battery energy storage. The generated micro-wind energy can be harvested in conditions of changing wind speed and stored in the batteries during periods of low energy demand. By injecting or absorbing reactive power, the battery storage system and micro-wind energy generating system (μ WEGS) will synthesis the output waveform and enable the true power flow required by the load. In the event of a grid breakdown, the system can also be used as a stand-alone system with an uninterrupted power source. In order to show the findings, this study deals with the simulation and implementation of DC to DC converters, such as SEPIC converters, in micro wind power generating systems.

Keywords: μ WEGS, SEPIC converters.



Design and Implementation of Optimized Controller Tuning of a Real Time Coupled Spherical Tank Process used in Process Industries

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Abstract

This paper proposes the optimized controller tuning for a real time coupled spherical tank process used in various process industries like chemical industries, waste water treatment plant, petrochemical industries, etc. In all process industries spherical tank process plays a vital role in each stages of the process. Spherical Tank has a uniformly stressed strong and complex structure used in various process industries. The varying diameter of Spherical Tank makes the process complicated and becomes a nonlinear system; this nonlinearity can be overcome by including the optimized tuning of a PID controller. The Particle Swarm Optimization (PSO) provides better results for process industries in-terms of easy storage, complete maintenance free operation, effective cleaning, and high stability output. The effectiveness of the Spherical Tank Process used in process industries is analysed based on optimized controller tuning and the performance is verified using the error criteria and by the time domain analysis. The optimized PSO tuning method provides enhanced time domain specifications, smooth response curve and minimized error compared to other controller tuning methods. The results are analysed using Matlab software.

Keywords: PID Controller, PSO, Nonlinear Process, Spherical tank process, Matlab.



A review on partial discharge diagnosis in cables: Theory, techniques, and trends[☆]

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ABSTRACT

Power cables, the most critical component of the power system, must be extremely reliable in order to avoid revenue losses due to premature failure. The dielectric properties of cable insulation may deteriorate due to ageing phenomena, which may have a negative impact on the polymer materials used for insulation. Therefore, the early detection of such depletion, and the severity of degradation while the equipment is in operation, aids in the avoidance of a total failure. Partial discharge (PD) detection and analysis have been adopted as a predictive test to characterize and assess the state of electric cables in advance. This review provides an in-depth discussion of the reactions that occur in the insulation system of the cables. Moreover, this paper presents a comprehensive review of the state-of-the-art of various PD detection techniques regarding sensor types. The drawbacks and challenges of different PD measurement techniques have been elaborated. Following that, the numerous PD localization methods are discussed, as well as the necessity of computational intelligence approaches and their pros and cons. Last but not least, the authors provide a deep insight into the theoretical and practical implications of deep learning in PD localization, as well as recommendations for future research directions. This review will provide valuable insights and act as a starting point for researchers to lead the development of more efficient approaches for diagnosing PD in the cable.

1. Introduction

Cables have a significant impact on the overall power network's reliability and accessibility, as cable failures nearly invariably result in catastrophic losses. Condition monitoring inspections and tests can be used to assess the extent of ageing deterioration in cables [1]. Cable insulation must be in excellent working conditions with no outages in order to assure continuity. The majority of the electrical problems that happen in the 21st century are likely to be caused by insulation deterioration. Partial discharges (PD) are regarded as one of the most reliable indicators of potential discharging of weak areas in cable insulation, which may ultimately result in cable system collapse [2]. Most high voltage equipment that was installed in the 1950s and 1960s has reached the end of its useful life [3]. A solid scientific foundation is provided by PD measurements for insulation assessments, allowing asset managers to make well-informed decisions about whether to replace outdated assets or prolong their useful lives.

As a result, detecting, locating, and recognizing PD at an early stage is crucial for maintenance [4].

The detection and continuous assessment of PD information may give significant insight into the state of the insulation. Polymeric insulating materials such as cross-linked polyethylene (XLPE) have been reported to completely degrade within a few days following the emergence of PD [5]. As a result, numerous researchers continue to investigate the relationship between PD and the life span of insulating materials [6–8]. But establishing such a quantifiable link is challenging. To effectively categorize the degree of discharge activity, the discharges must first be recognized and located. The intensity of discharge activity may be influenced by physical aspects of the defect, namely, the type of discharge (internal or surface discharge, corona or electrical trees), as well as other parameters such as the size and orientation of the void and electric field stress [9].

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Study of PD Signatures in Transformer Using Impulse Voltage by Holo-Hilbert Spectral Analysis

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Abstract—Partial discharge (PD) detection under impulse voltage excitation is becoming increasingly important due to its high sensitivity in examining the insulation integrity. Assessing the potential weaknesses at the early stages helps in the maintenance of the transformer. In this context, Holo-Hilbert spectral analysis (HHSA) is proposed for a detailed assessment of PD signatures obtained during a lightning impulse (LI) test to locate the region of occurrence of PD in the transformer winding. The experiments are carried out on a 315-kVA, 11-kV/433-V transformer at different voltage levels, up to 50% of the basic impulse insulation level under laboratory conditions. Two PD setups: corona PD in air and corona PD in oil, are developed and used between different tapings of the transformer winding to inject PD. Laboratory experiments are carried out for 1) different voltage levels and 2) different gap distances between the electrodes and HHSA spectrum have been reported for the first time. The results obtained are compared with the traditional time–frequency techniques. The results reveal that the proposed HHSA can be used for identifying the region of occurrence of PD in the vicinity of transformer winding.

Index Terms—Holo-Hilbert spectral analysis (HHSA), impulse test, partial discharge (PD), time–frequency analysis, transformers.

I. INTRODUCTION

MONITORING insulation condition in transformers is crucial to prevent failure and ensure reliable operation by detecting early signs of degradation. The insulation of the transformer undergoes a lot of stress over its working

life due to electrical, mechanical, thermal, and environmental factors, which finally cause insulation degradation [1]. Partial discharge (PD) activity, as described by IEC 60270, is a clear sign of insulation deterioration inside the transformer and frequently marks the beginning of the aging process in transformer insulation. Faults such as PD need to be monitored, and corrective action has to be taken at the early stage. These faults may seriously harm the transformer over a period of time [2]. Hence, PD detection and localization are of great assistance in condition monitoring, as they reveal the early signs of a potentially rapid deterioration that can lead to a catastrophic failure [3].

PD analysis by ac voltage has been widely utilized as the diagnostic method to detect insulation defects and has been the subject of extensive investigation by a number of researchers [4], [5], [6]. In fact, in addition to the impacts of dc and ac voltages, impulse voltage can have an influence on electrical equipment. The IEC 60060-3 standard states that PD diagnostic under the impulse withstand voltage has practical use in identifying concealed flaws and achieving safe operation [7], [8]. When the equipment is subjected to the impulse stress, the applied voltage will be the superposition of an ac and impulse voltage. As a result, the insulation properties differ from those under ac voltage alone [9]. However, the study of PD diagnosis with impulse voltage through computational analysis is still in its infancy. This research's objective is to examine the properties of PD in transformers under superimposed pulsed voltage, as well as the practical feasibility of locating PD using time–frequency analysis.

PD behavior during an impulse excitation has a stochastic characteristic [2]. The detection of major failure in power transformers during impulse tests has never been an issue but is rather difficult when only a minor failure, say a sparkover between adjacent coils or turns, lasting for a few microseconds occurs [10]. By adopting a time–frequency domain perspective, it becomes possible to detect frequency bands in the spectrum that are susceptible to resonance. Over a decade, several time–frequency-based techniques for PD analysis have been proposed by researchers. The application of wavelet analysis for PD detection is reported in [11]. Wavelet transform is used for the extraction of useful information from the PD signal; however, it largely depends on the choice of basis function, wavelet threshold, and the decomposition levels. The amplitude and the pulse shape of PD signals can vary depending on the discharge mechanism and the characteristics

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A Novel E-Nose System for the Characterization of Dissolved Gases in Dielectric Oils

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Abstract—The electricity sector heavily relies on oil-filled electricity equipment, particularly power transformers, which are critical and costly components in power generation and transmission systems. However, concerns arise as many of these assets have surpassed their useful life or are nearing the end of it. For this reason, the monitoring and diagnosis of failures in liquid insulation systems play an important role when it comes to extending the life of these pieces of equipment. In its current state, the measurement systems used to capture and quantify the evolution of gases have limitations hindering their widespread use in routine measurements. These limitations have forced a large part of the research and development efforts to focus on developing and proposing new forms of measurement that can be applied without any type of technical-economic restriction and still provide a much more accurate diagnosis of the failure. This article introduces a novel system that utilizes an electronic nose (E-nose) equipped with eight metal oxide semiconductor (MOS)-type gas sensors to measure dissolved gases in liquid insulation systems. The obtained results validate the system's exceptional performance in differentiating mineral oil samples based on the type and concentration of the predominant gases. This innovative approach shows great promise for routine monitoring and diagnosis, offering an efficient and cost-effective solution. Additionally, it exhibits significant potential for widespread implementation and provides a reliable means of assessing the condition of liquid insulation systems in various electrical assets.

Index Terms—Dielectric oils, dissolved gas analysis (DGA), electronic nose (E-nose) system, power transformer.

I. INTRODUCTION

REGARDING the power generation transmission and distribution systems, the oil-immersed transformer is one of the most relevant electrical assets in economic and operational terms. Its main function is the transference of electrical energy from one circuit to another in an efficient, reliable, and safe manner, increasing or decreasing the voltage [1], [2]. Operationally, this equipment is designed to work uninterruptedly for

several decades, however, the inevitable presence of thermal and/or electrical degradation mechanisms can trigger different types of failures that, over time, will prematurely compromise the operation of the equipment and therefore the stability of the system or the electrical network [1], [2], [3], [4].

In oil-immersed transformers, the main insulation system is the dielectric oil deposited in the transformer tank, which bathes the active parts of the asset and other types of solid cellulose-based insulation such as paper or cardboard. Dielectric oil is characterized by having a high dielectric strength, which is very useful when minimizing electrical disruptions such as corona discharges or electric arcs that are normally generated in equipment operating at high voltage [5], [6], [7], [8]. Additionally, this fluid has a very good rate of heat transfer compared to other types of insulation.

Unfortunately, in the presence of a failure, even if incipient, the liquid insulation systems begin to suffer a slow decomposition process along with a series of complex chemical reactions that produce different types of gases; such gases totally or partially dissolve in the oil, reducing the dielectric properties of the fluid [4], [6]. It is important to note that the presence of a failure within the fluid will generate different amounts of gases depending on the origin and type of failure, since the energy produced in each case will have a different way of destroying the molecular bonds of the medium where it acts [6], [8], [9], [10], [11]. Likewise, the solid or cellulose insulation in the equipment can also degrade in different ways depending on the severity of the anomaly, also contributing to the process of gas generation [6].

As documented in different studies [4], [5], [6], [7], [8], [9], [10], [11], [12], [13], [14], [15], [16], [17], [18], [19], [20], the main and most relevant gases generated through the decomposition of a dielectric oil include hydrogen (H_2), methane (CH_4), acetylene (C_2H_2), ethylene (C_2H_4), and ethane (C_2H_6) [4], [8], [9], [10], [11], [12], [19], [20].

Dissolved gas analysis (DGA) is currently one of the most frequently used tools in the maintenance processes to monitor and identify early-stage failures in transformers [3], [4], [5], [6]. Through different measurement technologies such as gas chromatography (GC), photoacoustic spectroscopy (PAS), solid-state (IC), thermal conductivity detector (TCD), nondispersive infrared (NDIR), infrared (IR), near infrared (NIR), Fourier transform infrared (FTIR), fuel cell (FC), micro-electronic sensor, or electrochemical cell [8], [9], it is possible to accurately identify the type and content of the gases dissolved in the oil. Additionally, for the interpretation, diagnosis, and evolution of a failure,

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STUDY ON THE ENGINE CHARACTERISTICS (CI) OF USING PUMPKIN-MAIZE-BLENDED BIODIESEL MIXED WITH ADDITIVE (DIETHYL ETHER)

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ABSTRACT. This paper focused on the engine characteristics of a diesel engine fuelled using ternary blends. Initially, pumpkin and maize biodiesel were mixed in a volume ratio of 50:50. With a constant 0.5% diethyl ether (DEE) content, the binary combination of pumpkin and maize biodiesel was mixed with diesel at proportions of 10:90, 20:80, 30:70, 40:60, and 50:50 by volume. The prepared ternary mixtures were evaluated at varying engine loads to improve engine performance. Compared to diesel, the tested ternary blends had a reduced brake thermal efficiency (BTE). However, up to a 30% blending ratio, the BTE demonstrated by ternary blends was within the range of less than 0.5% concerning diesel fuel. The ternary blends' BSFC declined as the binary biodiesel mix increased. Diesel has a brake specific fuel consumption (BSFC) of 1.4%, 2.2%, and 3.4% lower than the ternary blends of 10%, 20%, and 30%. The decrease in the heat release rate of the ternary mixes meant that emitted less CO and NO_x than diesel. In contrast, ternary blends exhibited an increasing trend in smoke and HC emissions because of the rise in incomplete combustion that occurs as biodiesel content rises. Therefore, with appropriate engine modifications, the pumpkin and maize binary biodiesel blend can replace diesel by up to 30%.

KEY WORDS: Biodiesels, Binary blend, DEE, Ternary blend, Efficiency

INTRODUCTION

Diesel is widely used as fuel worldwide, intended to power the compression ignition engines used for carrying goods across the globe, generating electricity, farming, heavy earthworks, military vehicles, etc. Diesel fuel is used to drive the worldwide economy by playing a crucial part in bolstering the global economy and living standards [1]. The transport segment is mainly powered by diesel fuel, particularly in passenger vehicles and light- and heavy-duty trucks; these vehicles are widely used in urban mobility and freight transportation due to their high efficiency and load-carrying capacity. In order to meet the demands of the expanding population and industrial activities, there are more vehicles on the road. As a result, the amount of diesel fuel consumed each year rises. For example, diesel consumption in India in June 2022 was around 7.83 million tonnes, up 23.9% over last year [2]. Among these, around 70% is used by the transport sector. Also, rising fuel consumption might increase crude oil imports for countries that outsource a large portion of their total oil demand, particularly India. It currently outsources over three-fourths of its overall oil demand [3].

The biodiesel is a possible replacement for fossil fuels or diesel produced from petroleum that may also help reduce greenhouse gas emissions and carbon footprint. Biodiesel is a biodegradable and environmentally friendly product that may be made from sustainable and renewable feedstocks, such as plant-derived oils. Due to its ability to reduce direct and indirect greenhouse gas emissions, such as CO₂, CO, SO₂, and HC, biodiesel is considered a clean energy source [4]. Diesel engines may now run-on biodiesel, which is made from methyl esters of fatty acids derived from fats and seed oils [5]. Due to its clean combustion behavior, renewability, and biodegradability, biodiesel appears to be the most environmentally friendly biofuel [6].

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Optimization of Electric Discharge Machining(EDM) process parameters using Grey Relational Analysis(GRA) for Incoloy 800HT

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Abstract— Optimization is techniques used in manufacturing condition to developed manufacturing process and important for manufacturing industries to get high quality of product at lower price. This paper investigate to optimized the various process parameters like pulse ON time, current and voltage in Electric discharge Machining(EDM) using L9 orthogonal array, To identify the variations in performance characteristic such as Material Removal Rate (MRR), Radial Over Cut(ROC) and Surface Roughness(SR) were calculated based on these experiments. White light spectroscopy was used to calculated the Surface Roughness of the machined surface of the Incoloy 800HT, these output values were optimized using Grey Relational Analysis(GRA) method. The preference values were obtained after the optimization processes. The readings for the experiment which had the highest preference value was selected as the optimized value.

Keywords— EDM, Incoloy 800HT,GRA, White light spectroscopy.

I. INTRODUCTION

The quality of a product is the main factor for showing growth of a company. The quality of the product mainly depends upon the material and process parameters. Incoloy 800,800H and 800HT is an austenitic iron-nickel-based super alloy that has good strength and high temperature [1]. For the ease of machining hard-to-machine materials with complex shapes, non-conventional machining processes are more capable than conventional machining [2]. Optimization technique plays a vital role to increase the quality of the product [3]. Incoloy 800HT will not become embrittled even after long periods of usage in the 1200-1600° F range where many stainless steels become brittle. Excellent cold forming characteristics typically associated with the nickel-chromium alloys are exhibited with 800HT. When cold formed extensively the grain size produces a visibly undulated surface called “orange peel”. Incoloy 800HT can be welded by the common techniques used on

stainless steels. Hence, many authors have presented their works on the optimisation of process parameters for various machining processes. It have done EDM process optimization with multiple performance characteristics based on orthogonal array with grey relational analysis for Titanium grades with brass electrode[4]. The process of dry EDM with tubular copper tool electrode and mild steel work-piece [5]. The experiments was conducted according to L9 orthogonal array. It was concluded that current was the most significant factor on ultimate tensile strength and pressure for impact energy [6].

Grey relational analysis (GRA) has been used by many researchers for machining processes which include electric discharge machining [7], chemical mechanical polishing [8], determining condition of tool in turning [9], side milling [10], and flank milling [11] to analyse the performance of diamond tool carbide inserts in dry turning [12], and optimization of parameters in drilling [13].

The objective of this paper is to determine the optimal levels of the process parameters for Electric-Discharge Machining process. This work was done with Incoloy 800HT grade as work piece material and copper as tool electrode. The process parameters such as current, voltage and pulse ON time were optimized with the considerations of multiple performance characteristics such as material removal rate, radial over cut and surface roughness value on the work material. The experimental results are presented and discussed.

Performance Characteristics of Diesel Engine Using Biodiesel Blends

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Abstract: Diesel vehicles are similar to gasoline vehicles because they both use internal combustion engines. One difference is that diesel engines have a compression-ignited injection system rather than the spark-ignited system used by most gasoline vehicles. In recent years, the acceptance of fatty acid methyl esters (biodiesel) as a substitute to petroleum diesel has rapidly grown in India. The raw materials for biodiesel production in this country mainly include traditional seed oils and used frying oils. In the search for new low-cost alternative feed stocks for biodiesel production, this study emphasizes the evaluation of lemon grass oil. The experimental results showed that the oil content of Lemon grass was remarkably high (45%). The main emphasis has been laid on optimum production of biodiesel from Lemongrass Oil then using the biodiesel blends with diesel studying the comparative characteristics and engine performance and the blends made from the biodiesel with diesel. The oil was chemically converted via an alkaline transesterification reaction with methanol to methyl esters, with a yield nearly 97.5 wt.%. All of the measured properties of the produced biodiesel met the current quality requirements. Oils were esterifying (butyl esters) before blending with pure diesel in the ratio of 4:96, 8:92, 12:80 by volume. Pure diesel was used as control. Initially the properties of the lemongrass Oil blends were determined density, viscosity, dynamic viscosity, flash point, fire point and calorific value. An assessment of engine performance brake power (BP), brake specific fuel consumption (BSFC), brake thermal efficiency (BTE) etc., was carried out for pure diesel and the oil blends. However, lemongrass oil at 12% blend with diesel gave best performance as compared to other blends

Keywords: lemongrass oil, Transesterification, Methyl esters, Esterifying.

I. INTRODUCTION

Diesel engines work by compressing only air, or air plus residual combustion gases from the exhaust (known as exhaust gas recirculation, —EGR). Air is inducted into the chamber during the intake stroke, and compressed during the compression stroke. This increases the air temperature inside the cylinder so that atomised diesel fuel injected into the combustion chamber ignites. With the fuel being injected into the air just before combustion, the dispersion of the fuel is uneven; this is called a heterogeneous air-fuel mixture. The torque a diesel engine produces is controlled by manipulating the air-fuel ratio (λ); instead of throttling the intake air, the diesel engine relies on altering the amount of fuel that is injected, and the air-fuel ratio is usually high. The diesel engine has the highest thermal efficiency (engine efficiency) of any practical internal or external combustion engine due to its very high expansion ratio and inherent lean burn which enables heat dissipation by the excess air. A small efficiency loss is also avoided compared with non-direct-injection gasoline engines since unburned fuel is not present during valve overlap and therefore no fuel goes directly from the intake/injection to the exhaust. Low-speed diesel engines (as used in ships and other applications where overall engine weight is relatively unimportant) can reach effective efficiencies of up to 55%. The combined cycle gas turbine (Brayton and Rankin cycle) is a combustion engine that is more efficient than a diesel engine, but it is, due to its mass and dimensions, unsuited for vehicles, watercraft, or aircraft. The world's largest diesel engines put in service are 14-cylinder, two-stroke marine diesel engines; they produce a peak power of almost 100 MW each.

Diesel engines may be designed with either two-stroke or four-stroke combustion cycles. They were originally used as a more efficient replacement for stationary steam engines. Since the 1910s, they have been used in submarines and ships. Use in locomotives, buses, trucks, heavy equipment, agricultural equipment and electricity generation plants followed later. In the 1930s, they slowly began to be used in a few automobiles. Since the 1970s energy crisis, demand for higher fuel efficiency has resulted in most major automakers, at some point, offering diesel-powered models, even in very small cars.

Investigation of Emission and Performance Characteristics by using of Jojoba Oil and Tamarind with Additive in Single Cylinder C.I Engine

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Abstract: For use as a renewable fuel in diesel engines, the current experimental study investigates the extensive potential of a unique biodiesel in the form of tamarind seed oil. Given its widespread availability at almost no cost, improved sustainability, and environmental friendliness, it is a desirable candidate for widespread use in diesel engines in a nation like India. Through the transesterification process, tamarind seed yields Tamarind Seed Methyl Ester (TSME), and Jojoba Seed Methyl Ester an effective potential fuel. Tamarind Seed Methyl Ester and Jojoba Seed Methyl Ester with diesel fuel are mixed in volumetric proportions to create different biodiesel blends like TJME 10, TJME 20, TJME 30, TJME 40 and TJME 50. Experimental evaluation and comparisons between the physio-chemical characteristics of tamarind and Jojoba seed methyl ester blends, and diesel fuel were conducted.

To investigate the performance, emissions, and combustion characteristics of a diesel engine, experiments were conducted on a four-stroke, single cylinder, water cooled, direct injection diesel engine that was fueled with diesel fuel and various tamarind seed biodiesel blends, such as TJME10, TJME20, TJME30, TJME 40 and TJME 50, at a rated speed of 1500 rpm from no load to full load operating conditions. The following parameters were assessed in engine, carbon monoxide, hydrocarbons, and oxides of nitrogen, smoke opacity, heat release rate, brake thermal efficiency, and brake-specific fuel consumption. This testing phase enabled the identification of the tamarind biodiesel mix, TJME 20, whose performance is equivalent to diesel. Additionally, the findings showed that improved ignition characteristics, reduced CO and HC emissions, and a considerable reduction in smoke among the other tested fuels, emissions. However, there was a little rise in the nitrogen oxides and specific fuel consumption.

The focus of this project's second phase was on how the characteristics of diesel engines running on TJME 20 biodiesel blends were affected by various oxygenated fuel additives acting as ignition enhancers. For this investigation, oxygenated gasoline additive were taken into consideration at varying amounts (5% and 10%) on a volume basis. Due to their greater stability, low viscosity, faster ignition rate, and rich inherent oxygen content, they were mostly employed to improve the qualities of biodiesel to a significant level. This results in the clean burning of fuels in the combustion chamber. According to the results of the trial, TSME20 with I-Pentanol fuel additive produced better performance, combustion characteristics, and lower tailpipe emissions than the other fuels that were put to the test.

Enhanced air-fuel mixing, better oxidation, a higher surface area to volume ratio that led to a higher brake thermal efficiency for the TJME20 with I-pentanol blend at 36.25% was 1.9% higher than the TJME20 at peak load condition, as well as significant decreases in carbon monoxide, hydrocarbon, and smoke emissions are just a few of the benefits that the immersed I-Pentanol in the tamarind seed oil blends exhibit.

According to the experimental findings, tamarind and jojoba seed biodiesel has the potential to be a significant source of alternative fuel due to its improved combustion and higher heat release rates, as well as a significant improvement in brake thermal efficiency and a significant decrease in harmful pollutants like carbon monoxide, hydrocarbons, and smoke. In addition to lowering pollutants, it will also help distributed power generation in areas where such seeds are widely produced. Last but not least, tamarind seed biodiesel is a feasible and potentially useful alternative fuel for partially or entirely replacing diesel in diesel engines in the interest of energy sustainability and the environment.

Keywords: IC engine, Bio Fuel, I-Pentanol, Jojoba, Tamarind, Emission, Performance