

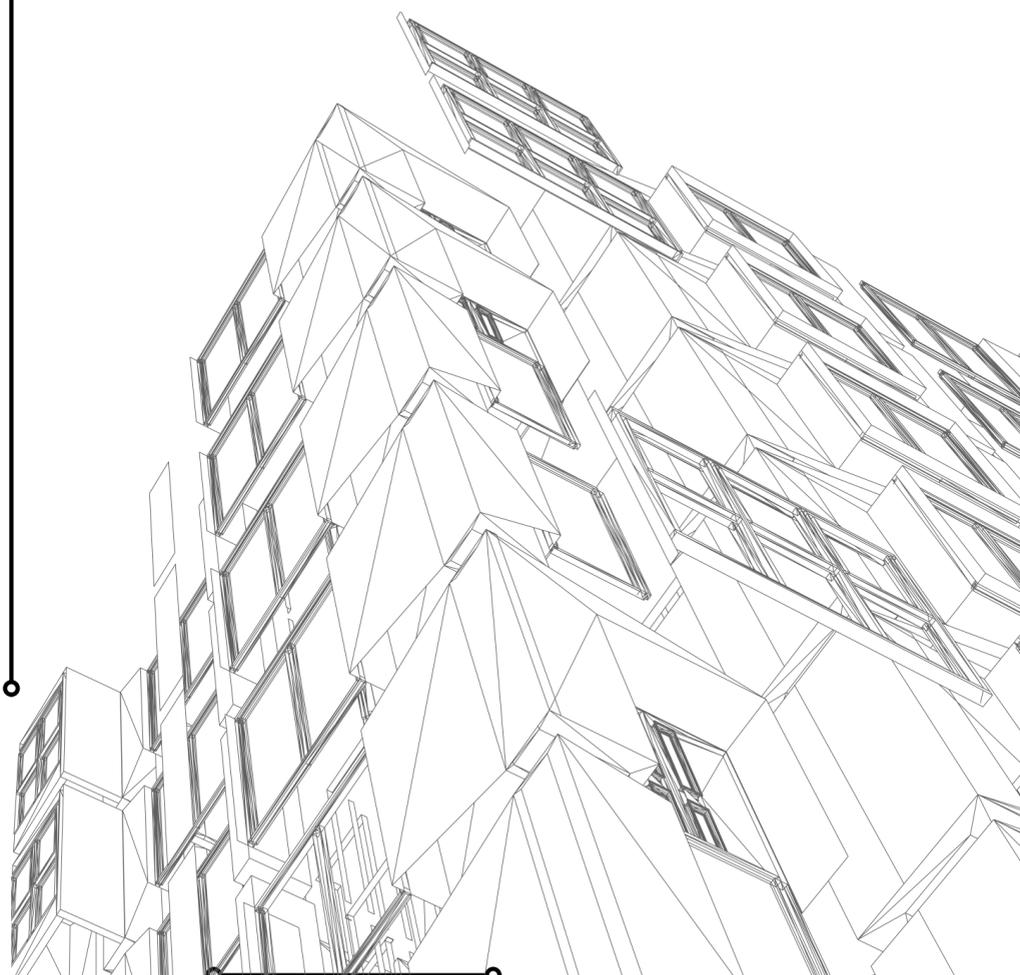


Dr.BGR
Publications

International Conference on Advancements in Engineering and Technology (ICEAET-2026)

Editors

Dr. A. Bathsheba Parimala
Mr. B. Edward Daniel Christopher
Mr. K.Appasamy
Mr. I.Thomas Jebasingh



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Publisher	Dr. BGR Publications 9003494749 drbgrpublications@gmail.com https://drbgrpublications.in/books/ https://www.instagram.com/drbgrpublications/
Country of Publication	India
Title	International Conference on Advancements in Engineering and Technology (ICEAET-2026)
ISBN	978-81-993168-2-9
Conference Name	2 nd International Conference on Advancements in Engineering and Technology
Conference Date	29 th January, 2026
Organizing Institute	St.John's College, Palayamkottai
Editor	Dr. A.Bathsheba Parimala
Co-Editor	Mr. B.Edward Daniel Christopher Mr. K.Appasamy Mr. I.Thomas Jebasingh
Page Size	A4
Language	English
Access Mode	Online Open Access
Product Form	Digital download and online
Date of Publication	29-01-2026
Copyright Holder	© 2026 by respective authors
Edited and typeset by	Dr. BGR Publications
Cover design credit	Dr. B.Govindarajan
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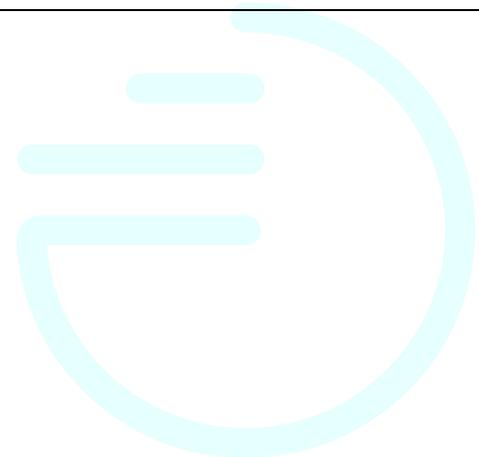


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Dr.BGR
Publications

QuickMed–Doctor Appointment and Health Record System

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Abstract

QuickMed – Doctor Appointment & Health Record System is a web-based healthcare management platform designed to digitalize and streamline interactions among patients, doctors, and hospital administrators. The system provides a centralized, secure environment for efficiently managing patient records, doctor profiles, appointments, and medical information. By replacing traditional paper-based processes with a structured digital workflow, the platform aims to reduce time consumption, minimize human errors, and enhance the overall quality of healthcare services. The application enables patients to register, log in, book appointments, and access their medical history through a user-friendly interface. Doctors can manage appointment schedules, view patient details, and update medical reports, and record treatment information in an organized and systematic manner. The administrative module oversees system operations by managing user accounts, monitoring activities, and ensuring data integrity and security. Developed using PHP, MySQL, Bootstrap, and modern web technologies, the system emphasizes responsiveness, security, and usability. Its modular and scalable architecture allows easy adaptation to real-world hospital environments. Features such as role-based authentication, dedicated dashboards, and responsive design ensure seamless interaction across multiple devices. The Quick Med system enhances communication between patients and healthcare providers, improves operational efficiency, and offers a reliable digital solution for hospital management. This project highlights the

role of technology in modernizing healthcare services and making them more accessible, organized, and secure.

Keywords: Healthcare Management System, Doctor Appointment System, Electronic Health Records, Web-Based Application, PHP, MySQL, Hospital Management, Role-Based Authentication, Digital Healthcare

Smart Grocery and Pantry Order Hub

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Abstract

The Smart Grocery and Pantry Order Hub is a web-based application developed to simplify and enhance the process of online grocery purchasing. The system enables users to browse and select products from various categories and subcategories such as fruits, vegetables, dairy products, biscuits, and packaged foods. Designed to resemble modern e-commerce platforms, the application provides a smooth, intuitive, and user-friendly shopping experience. The project is implemented using PHP for backend processing, MySQL for efficient database management, and HTML and CSS for frontend design. All essential data, including product details, categories, subcategories, and user information, are securely stored and managed within the database. The system includes a search functionality that allows users to quickly locate products, as well as a cart management system to add, update, and remove items with ease. The primary objective of this project is to reduce manual effort and improve operational efficiency in grocery management. This system is particularly beneficial for small grocery stores and supermarkets, enabling them to digitally manage their inventory and provide organized, reliable, and convenient online shopping services to customers.

Keywords: Online Grocery System, E-Commerce Application, Web-Based Shopping, PHP, MySQL, Inventory Management, Cart System, Digital Grocery Management, Online Ordering

Robotics and Augmentation: Enhancing Human Potential

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Abstract

This paper explores the dynamic and transformative convergence of robotics and human augmentation, two fields that were historically developed as separate disciplines but are now increasingly interconnected. This convergence has led to the emergence of advanced systems that not only automate tasks but also directly enhance human physical and cognitive capabilities. The paper examines the evolution of robotics and human augmentation technologies, highlighting their growing synergy and collaborative potential across diverse domains such as healthcare, manufacturing, rehabilitation, and everyday human activities. In addition to technological advancements, the paper addresses the ethical, social, and economic implications of this integration, including issues related to equity of access, human identity, dependency on machines, and the future of work. By encouraging responsible innovation and inclusive design, this study emphasizes the need for balanced development that aligns technological progress with human values. Ultimately, the convergence of robotics and human augmentation presents an opportunity to expand human potential while ensuring that these technologies serve the collective well-being of society.

Keywords: Robotics, Human Augmentation, Human–Machine Collaboration, Technological Convergence, Wearable Exoskeletons, Neural Interfaces, Brain–Computer Interfaces, Physical Enhancement, Cognitive Enhancement, Assistive Technologies, Advanced Robotics, Ethical Responsibility, Societal Impact, Human Enhancement, Future Technology, Responsible Innovation

VIGIL – Document Expiry and Notification System

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Abstract

The VIGIL is a web-based Document Expiry and Notification System designed to automate the tracking and management of documents with expiration dates, eliminating the need for manual monitoring. The system proactively notifies users through timely alerts, helping them avoid penalties, service interruptions, and compliance issues caused by expired documents. VIGIL offers a centralized and user-friendly dashboard that enables individuals and organizations to securely store, categorize, and monitor important documents such as licenses, certificates, IDs, and contracts. The application supports efficient document upload, retrieval, and renewal tracking, thereby improving operational efficiency and reducing administrative overhead. The frontend is developed using React with Tailwind CSS to provide a responsive and intuitive user interface. The backend is implemented using FastAPI (Python), ensuring high performance, scalability, and secure API communication. PostgreSQL is utilized for reliable data storage, while a cloud-based storage service manages document files efficiently. By integrating automated notifications, secure storage, and scalable architecture, VIGIL provides a reliable, efficient, and user-centric solution for document lifecycle management, significantly minimizing user inconvenience and the risk associated with missed expiration deadlines.

Keywords: Document Expiry Management, Notification System, Web Application, FastAPI, React, Tailwind CSS, PostgreSQL, Cloud Storage, Automation

An Analytical Survey of Image Denoising Techniques

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Abstract

Image denoising plays a critical role in enhancing image quality within the fields of image processing and computer vision. Noise introduced at various stages such as image capture, data transmission, or storage can significantly distort visual information and negatively influence the performance of downstream analytical processes. This study provides an extensive overview of image denoising methodologies, encompassing traditional techniques based on spatial filtering and transform-domain analysis, as well as contemporary data-driven and deep learning-based solutions. The paper examines different noise characteristics, evaluates widely used denoising algorithms, and reviews commonly adopted performance evaluation metrics. In addition, practical application areas are considered. Through comparative discussion, this work outlines the advantages and constraints associated with each class of denoising methods, offering valuable guidance for both academic researchers and industry professionals.

Keywords: Image Denoising, Image Processing, Computer Vision, Spatial Filtering, Deep Learning

Thought-Based Device Control Using BCI

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Abstract

Currently, interest in the Brain-Computer Interfacing (BCI) field is steadily increasing, as evidenced by the volume of BCI-related articles published or presented in neuro-engineering or neuroscience journals, conferences, or workshops. In all these investigations, brain activity is viewed as a straight forward means of supplying a system or device with information from human interactions. This straight forward exchange of information signifies a major advancement, as BCI combines brain signals with data from various sources including speech, eye movement, gestures, facial expressions, body posture, or physiological indicators such as heart rate, blood pressure, or electrodermal activity. This combination generates a context-aware and context-dependent understanding of brain signals, but simultaneously poses a challenge for neuroscience researchers who must handle and represent all this data for both clinical and non-clinical uses. BCI has emerged as a captivating and influential research area providing diverse applications ranging from cognitive load in educational activities and gaming to automotive and assistive technologies. This document seeks to highlight contemporary trends in the advancement and study of brain-computer interfaces based on the authors' experiences and existing scientific research.

Keywords: Electrodermal activity, Contemporary trends, neuro-engineering, BCI, brain signal

Beyond Reality: Where Virtual Worlds Meet Healthcare

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Abstract

Virtual Reality (VR) has emerged as a transformative technology in modern healthcare by enabling immersive and interactive environments that bridge the gap between theoretical medical knowledge and real-world clinical practice. By simulating realistic medical scenarios, VR allows healthcare professionals and students to gain hands-on experience in safe and controlled environments, improving clinical skills and decision-making. This paper examines the role of VR in healthcare training and clinical applications, highlighting its impact on medical education, rehabilitation, pain management, and mental health therapy. In medical education, VR-based simulations support realistic procedural training, anatomical visualization, and repeated practice, leading to improved learning outcomes. In rehabilitation, VR enables personalized therapy programs that enhance patient engagement and support motor and cognitive recovery. VR is also effective in pain management by providing immersive distraction techniques during medical procedures, while in mental healthcare it is widely used for exposure therapy in treating anxiety disorders, phobias, and post-traumatic stress disorder (PTSD). Despite these advantages, large-scale adoption of VR in healthcare remains limited due to high implementation costs, hardware and usability constraints, and the need for specialized training. Ethical concerns related to patient safety, data privacy, and cybersecurity further affect deployment. Overall, this paper highlights VR's potential as a key

enabling technology that supports immersive learning, personalized treatment, and patient-centered healthcare systems.

Keywords: Virtual Reality, Immersive Healthcare, Medical Training, Rehabilitation Technologies, Digital Therapeutics

Collaborative Intelligence: The New Role of Robotics in Industry

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Abstract

Robotics has emerged as a crucial enabler of transformation in modern industries by bridging the gap between traditional automation and intelligent, adaptive systems. In its early stages, robotics was primarily limited to repetitive and predefined tasks in controlled industrial environments; however, rapid advancements in artificial intelligence (AI), sensing technologies, and networked communication systems have transformed robotic technologies into sophisticated systems capable of intelligent decision-making and real-time adaptation. This evolution has significantly expanded the scope and impact of robotics across major industrial sectors such as manufacturing, healthcare, agriculture, logistics, and construction. In manufacturing, robotics enhances productivity, precision, and quality control through automated assembly, inspection, and material handling processes, while in healthcare, robotic systems support surgical procedures, rehabilitation, diagnostics, and hospital logistics, thereby improving accuracy and patient safety. Agricultural robotics enables precision farming through automated planting, harvesting, and crop monitoring, whereas logistics and construction industries benefit from robotics in warehouse automation, autonomous transportation, and hazardous task execution. Furthermore, robotics plays a vital role in supporting Industry 4.0 initiatives, enabling smart factories, real-time data exchange, and human-robot collaboration. The integration of computer vision, force and proximity sensors, machine learning algorithms, and intelligent control systems allows robots to perceive their

environment, learn from data, and operate safely alongside human workers. Despite these advantages, challenges such as high initial investment costs, workforce reskilling requirements, interoperability issues, and cybersecurity risks continue to limit large-scale adoption, emphasizing the need to address these barriers to fully realize the potential of robotics in industrial environments.

Keywords: Robotics, Industrial Automation, Industry 4.0, Human–Robot Collaboration

Data Science Mechanisms in Social Media and OTT Platforms

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Abstract

Data science has become a fundamental component in the operation and success of modern digital platforms, particularly social media and Over-The-Top (OTT) streaming services. These platforms generate massive volumes of structured and unstructured data through continuous user interactions such as posts, likes, comments, shares, viewing history, search behaviour, and ratings. Data science techniques, including machine learning, big data analytics, natural language processing, and predictive modelling, are employed to analyse this data and derive actionable insights. In social media platforms, data science mechanisms enable personalized content delivery, sentiment analysis, trend identification, social network analysis, misinformation detection, and targeted advertising. Similarly, OTT platforms rely heavily on data-driven recommendation systems to suggest personalized content, analyse viewer preferences, predict customer churn, and improve user retention. Algorithms such as collaborative filtering, matrix factorization, and deep learning models play a vital role in enhancing user engagement and optimizing content strategies. Despite these advantages, the extensive use of data science introduces challenges related to user privacy, algorithmic bias, transparency, and ethical concerns. This paper presents a comprehensive study of data science mechanisms used in social media and OTT platforms, compares their analytical approaches, highlights key challenges, and discusses future research directions for responsible and effective data-driven digital platforms.

Keywords: Data Science, Social Media Analytics, OTT Platforms, Machine Learning, Recommendation Systems, Big Data, Personalization, Predictive Analytics, Ethical AI

Deep Fakes and Fake News: Challenges to Truth and Trust in the Digital Age

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Abstract

The rapid advancement of artificial intelligence has enabled the development of *deepfake* technology, which allows the creation of highly realistic yet fabricated audio-visual content. At the same time, the spread of *fake news* has emerged as a serious challenge in digital communication, influencing public opinion, social stability, and democratic processes. When deepfakes are combined with fake news, misinformation becomes significantly more convincing and difficult to detect, posing a direct threat to truth and trust in the digital age. This paper examines the technological foundations of deepfakes, focusing on deep learning models such as Generative Adversarial Networks (GANs), and explains how these technologies are exploited to generate deceptive media. It further analyzes the role of deepfakes in amplifying fake news across social media platforms, political campaigns, and online fraud schemes. The study discusses the social, ethical, and psychological implications of deepfake-driven misinformation, including erosion of public trust, privacy violations, reputational damage, and the emerging phenomenon of the “Liar’s Dividend,” where genuine evidence can be dismissed as fake. Additionally, the paper reviews current countermeasures such as machine-learning-based detection systems, digital content authentication, legal regulations, and digital literacy initiatives. While technical solutions play an essential role, this paper argues that preserving truth and trust requires a comprehensive approach that integrates technological innovation, policy frameworks, platform accountability, and

public awareness to effectively combat deepfake-enabled misinformation in the digital ecosystem.

Keywords: Deepfakes, Fake News, Misinformation, Digital Trust, Artificial Intelligence, Media Ethics, Information Integrity

A Novel Hybrid Multi-Scale Attention and Uncertainty-Aware Framework for Lung Tumor Detection

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Abstract

Lung cancer remains one of the leading causes of cancer-related mortality worldwide, primarily due to late-stage diagnosis and high inter-observer variability in radiological interpretation. This paper proposes a novel Hybrid Multi-Scale Attention and Uncertainty-Aware Deep Learning Framework (HMSA-UA) for automated lung tumor detection from chest CT images. The proposed approach integrates multi-scale feature extraction, transformer-guided attention, and Bayesian uncertainty estimation to improve detection accuracy, robustness, and clinical reliability. Unlike conventional CNN-based methods that provide deterministic outputs, the proposed framework quantifies prediction confidence, enabling risk-aware clinical decision-making. Experimental evaluation demonstrates that the proposed method significantly outperforms state-of-the-art CNN and transformer-based models in terms of accuracy, sensitivity, and false-positive reduction.

Keywords: Lung tumor detection, CT imaging, deep learning, attention mechanism, uncertainty estimation, medical image analysis

Tourist Navigator Website

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Abstract

Tourism is one of the fastest-growing global industries, and the adoption of digital technologies has significantly transformed how tourists plan and manage travel activities. Traditional tourism management approaches rely on manual processes that are time-consuming, inefficient, and error-prone. This paper presents a Tourist Navigator Website, a web-based application designed to automate tourist destination exploration, online booking, and administrative management. The system consists of two modules: User and Admin. Users can register, explore destinations, view detailed information, book travel packages, and submit feedback. Admins can manage tourist locations, bookings, and monitor system activities. The application is developed using PHP, MySQL, HTML, CSS, and JavaScript, ensuring security, scalability, multilingual support, and user friendliness. Structured database management enables efficient data retrieval. Comprehensive testing confirms the system's reliability and performance. The proposed system enhances the tourist experience while simplifying administrative operations.

Keywords: Tourist Navigator Website, Tourism Management System, Online Booking System, Web-Based Application, Digital Tourism Platform

Sentiment Analysis Using Natural Language Processing

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Abstract

Natural Language Processing (NLP) is a vital domain of artificial intelligence that enables computers to analyze, interpret, and understand human language. The rapid expansion of digital textual data generated through social media platforms, online reviews, blogs, and feedback systems has increased the need for automated text analysis techniques. Sentiment analysis, also known as opinion mining, is a significant application of NLP that focuses on identifying sentiment polarity, emotional tone, and subjective information from textual data. This paper examines various sentiment analysis techniques used to classify text into positive, negative, and neutral categories. It explores different approaches, including lexicon-based methods, traditional machine learning algorithms, and advanced deep learning models, highlighting their effectiveness in extracting meaningful insights from unstructured data. Additionally, the importance of preprocessing techniques such as tokenization, lemmatization, and feature extraction in improving classification accuracy is discussed. Sentiment analysis plays a crucial role in evaluating customer satisfaction, brand perception, and public opinion, thereby enabling data-driven decision-making across multiple domains, including marketing, healthcare, finance, and social media analytics. The results indicate that NLP-based sentiment analysis provides a scalable and efficient solution for processing large volumes of textual data and offers valuable insights for enhancing user experience and strategic planning.

Keywords: NLP, Learning-Customer, NPS

Smart Loan Approval Prediction System

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Abstract

The Smart Loan Approval Prediction System is a web-based application developed using PHP and MySQL to simplify and automate the loan approval process in financial institutions. Traditionally, loan approvals are handled manually, which involves the collection and verification of various applicant details such as income, employment status, credit score, and repayment capacity. This manual process is not only time-consuming but also prone to human errors and delays, which often cause inconvenience for both banks and applicants. The proposed system addresses these issues by providing an automated platform that predicts the eligibility of applicants and determines whether a loan can be approved or rejected based on pre-defined criteria and stored data. By integrating predictive logic with an easy-to-use interface, the system offers faster decision-making, transparency in loan processing, and improved accuracy compared to traditional methods. In addition, it reduces the workload of bank employees, ensures consistency in evaluations, and provides applicants with quick results. Overall, the Smart Loan Approval Prediction System enhances the efficiency of financial services by combining technology, automation, and user-friendly design.

Keywords: Smart Loan Approval Prediction, Loan Eligibility Prediction, Web-Based Application, Automated Decision Making, Financial Services Automation

NOTESHUB

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Abstract

The Noteshub is a simple and user-friendly platform designed to help students share and access study notes with ease. Users can register, log in, upload their own notes, search and download shared files, bookmark their favorites, and provide ratings or reviews to guide others. The system also includes a secure admin panel, where administrators can view all uploaded content, manage users, and remove inappropriate or irrelevant notes to maintain quality. The platform ensures smooth navigation through an intuitive dashboard, while login and logout features provide security for both users and admins. With quick uploads, easy downloads, and interactive feedback options, Noteshub makes learning collaborative, engaging, and organized. It fosters a supportive community where knowledge is shared freely and efficiently. In addition, Noteshub encourages students to actively participate in knowledge-sharing, reducing dependency on traditional methods of exchanging notes. The platform saves time, enhances accessibility, and provides a reliable space for academic collaboration. By creating a digital hub of resources, Noteshub empowers learners to prepare better, connect with peers, and achieve academic success in a smarter way.

Keywords: Noteshub, Study Notes Sharing, E-Learning Platform, File Upload and Download, User Authentication, Bookmarking System, Rating and Review System, Admin Panel, Knowledge Sharing, Student Collaboration, Digital Learning, Academic Resources, Secure Dashboard, Online Education Platform

Fake News Detection Using Machine Learning Techniques

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Abstract

The rapid dissemination of information through digital news platforms and social media has intensified the spread of fake news, posing significant challenges to public trust and informed decision-making. The ability to automatically identify and filter misleading or false information has therefore become a critical research problem. This paper presents a Fake News Detection System based on machine learning techniques to classify news articles as either fake or real. The dataset used for this study was collected from Kaggle and consists of labeled real and fake news articles. To enhance the quality of textual data, several natural language processing techniques are applied, including text cleaning, stop-word removal, and lemmatization. The processed text is then transformed into numerical feature vectors using the Term Frequency–Inverse Document Frequency (TF-IDF) approach. Multiple supervised machine learning algorithms, namely Logistic Regression, Naive Bayes, and Random Forest, are trained and evaluated using cross-validation techniques to ensure model robustness. Experimental results indicate that Logistic Regression outperforms the other models in terms of classification accuracy and consistency. The performance of the selected model is further evaluated using a confusion matrix and classification report, demonstrating its effectiveness in detecting fake news. The proposed system is capable of accurately predicting the authenticity of unseen news articles and can be extended to real-time monitoring systems or integrated into web-based platforms to combat misinformation more effectively.

Keywords: Fake News, Machine Learning, TF-IDF, Text Classification

Intelligent News Detection

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Abstract

The introduction of web-based news channels and social network sites increased the quantity and speed of information. The surplus quantity of information spread at a high rate leads to the easy spreading of “fake news.” “Fake news” is defined as “False Information Disseminated through News Media.” It is an issue of major concern since fake news can alter a country's social and political atmosphere. In this regard, verification of the authenticity of the information manually is a really time-consuming process and further devoid of the capacity for handling the huge quantity of information, which is being built up every day through the digital world. In this regard, the paper proposes an artificial intelligence-powered solution for the detection and classification of fake news in an automated manner. In the proposed solution, natural language processing techniques dealing with the pre-processing of text data will be utilized by eliminating noise from the data and highlighting important linguistic features. These linguistic features can then be transformed into numerical features through Term Frequency-Inverse Document Frequency (TF-IDF). These can then be used to train machine learning algorithms, such as Naive Bayes, Logistic Regression, and Support Vector Machines, to develop learning patterns of fake and actual news.

Keywords: Fake News Detection and TF-IDF (Term Frequency–Inverse Document Frequency)

Cryptography in Real-Time Authentication and Applications

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Abstract

In the current digital world, the security in communicating data has become more tedious. The cryptography is used for securing one's data by means of encrypting the communication. So many recent technologies are used in securing the communication but there are some security issues in data security. There is a need for a robust security mechanism in communicating data. The data communications real-time applications are gaining significant attention due to the growing demand for systems that require immediate verification and trust without relying on central authorities. Some of the real time applications of the cryptography are messaging and email, healthcare, password security, E-commerce and online banking, cloud storage, crypto currency etc., This paper explores the skeleton of cryptographic system, necessitate of cryptographic system in day-to-day life. Gives a desitive on the role of cryptographic authentication system and scrutiny on its applications. It also provides a dwarf concern that must be taken in cryptographic systems. This paper also reviews on the future directions for expanding its real-time capabilities across emerging sectors.

Keywords: Cryptographic system, Authentication, Application, Data Communication

Weather Prediction Using Machine Learning

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Abstract

Weather forecasting plays a vital role in daily life and has a significant impact on areas such as agriculture, transportation, and emergency management. Although traditional weather forecasting methods have improved over time, there is still a need for better accuracy and efficiency. In recent years, machine learning has emerged as an effective approach for weather prediction due to its ability to process large volumes of data and identify complex patterns. This research paper focuses on the application of supervised machine learning algorithms, namely Decision Trees, Logistic Regression, and k-Nearest Neighbors, to predict weather conditions using historical daily weather data collected from multiple weather stations within a specific region. The models are trained on past data to forecast future weather conditions, and the results demonstrate that machine learning techniques can enhance the reliability and performance of weather prediction compared to conventional methods.

Keywords: Decision Tree, Logistic Regression, K-Nearest Neighbours

Artificial Intelligence in Healthcare System

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Abstract

Healthcare systems generate large amounts of data from Medical records, Laboratory reports, Medical images, and Patient monitoring devices. Managing and analyzing this data manually is time-consuming and may lead to errors. Artificial Intelligence (AI) helps healthcare professionals by providing accurate, fast, and intelligent decision support. This paper discusses how AI techniques such as machine learning and deep learning are used in healthcare applications like Disease prediction, Medical image analysis, Patient monitoring, and Personalized treatment planning. AI models analyze patient data to identify patterns and assist doctors in early diagnosis and better treatment decisions. The paper also highlights challenges such as Data privacy, Ethical issues, and the need for transparent decision-making in medical systems. The role of explainable AI in improving trust between doctors and AI systems is briefly discussed. Overall, AI has the potential to improve Healthcare quality, Reduce workload, and Support efficient clinical decision-making.

Keywords: Artificial Intelligence, Healthcare, Machine Learning, Deep Learning, Medical Diagnosis, Explainable AI, Clinical Decision Support

Priority Aware Patient Flow Optimization in Public Hospitals

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Abstract

Efficient management of patient flow is a critical challenge in public hospitals, where high patient volumes and limited resources often lead to overcrowding and delays in care. Traditional first-come-first-served approaches fail to consider clinical urgency, causing prolonged waiting times and delayed treatment for critically ill patients. A priority-aware system organizes patients based on urgency, using early-stage data collection and centralized information management. This allows healthcare staff to allocate resources effectively, coordinate services efficiently, and ensure timely medical interventions. Centralized data handling supports real-time monitoring, reduces bottlenecks, and improves decision-making in hospital workflows. By prioritizing patients according to clinical need rather than arrival time, waiting times are minimized, emergency response is enhanced, and overall service efficiency is increased. The approach also enables continuous evaluation of patient flow, facilitating process improvements and better utilization of hospital resources. Implementing such a system provides a structured, scalable solution to optimize healthcare delivery and improve the quality of patient care in public hospital environments.

Keywords: Patient Flow Management, Priority Scheduling, Public Hospitals, Healthcare Systems, Service Optimization

A Survey on Network Security: Threats, Attacks, and Defense Techniques

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Abstract

Network security is a fundamental component of cybersecurity, aimed at protecting network infrastructure, data, and communication systems from cyber threats. With the rapid expansion of the internet, cloud computing, and interconnected devices, networks have become a primary target for attackers. This paper presents a survey on network security by reviewing common threats, attacks, and defense techniques used in modern network environments. The study discusses key security threats such as unauthorized access, data breaches, and malware that affect the confidentiality, integrity, and availability of information. Major network-based attacks including denial-of-service (DoS), man-in-the-middle attacks, phishing, and ransomware are analyzed to understand their impact on network systems. To counter these attacks, various defense techniques are examined, such as firewalls, intrusion detection and prevention systems, encryption, authentication mechanisms, and access control methods. The importance of continuous network monitoring and timely incident response in maintaining secure networks is also highlighted. Furthermore, the paper addresses current challenges in network security, including increasing attack sophistication, insider threats, and the security risks introduced by cloud computing and Internet of Things (IoT) devices. The survey emphasizes the need for layered security approaches and proactive defense strategies to enhance network protection. This work aims to provide a clear and structured overview of network security concepts

and serve as a useful reference for beginners, students, and researchers in the field of cybersecurity.

Keywords: Network Security, Cybersecurity, Network Attacks, Defense Techniques

Blood Bank Management System

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Abstract

This project which aims in developing a Desktop Application to maintain all the daily work of Blood Bank Centre. This project has many features which are generally not available in normal Blood Bank Management Systems like Blood/Donors Records, Issue Patient Bill etc. It also has a facility of admin login through which the admin can monitor the whole system. This System can be used to search for Assign Work, Add/Remove Staff, Add / Remove Blood etc. The Admin after logging into his account can generate various reports such as Blood Stock Report and Service/Work Report. Overall, this project of ours is being developed to help the Blood Bank Centre to maintain the Service Centre in the best way possible and also reduce the human efforts.

The Annual Sports Meet Participant Performance Tracking System

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Abstract

The annual sports meet participant performance tracking system developed in PHP is a web-based application designed to streamline the process of scheduling medical appointments. The system enables patients to register, view available doctors, check schedules, and book appointments online without the need for physical visits. It provides administrators and medical staff with tools to manage doctor profiles, appointment slots, patient records, and notifications efficiently. By automating scheduling tasks, the system minimizes administrative workload, reduces errors, and enhances overall patient experience. Implemented using PHP, MySQL, HTML, CSS, and JavaScript, the platform ensures secure data handling, real-time updates, and improved accessibility for both patients and healthcare providers.

Hospital Appointment Booking System

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Abstract

The Hospital Appointment Booking System developed in PHP is a web-based application designed to streamline the process of scheduling medical appointments. The system enables patients to register, view available doctors, check schedules, and book appointments online without the need for physical visits. It provides administrators and medical staff with tools to manage doctor profiles, appointment slots, patient records, and notifications efficiently. By automating scheduling tasks, the system minimizes administrative workload, reduces errors, and enhances overall patient experience. Implemented using PHP, MySQL, HTML, CSS, and JavaScript, the platform ensures secure data handling, real-time updates, and improved accessibility for both patients and healthcare providers.

Agile vs Waterfall: A Study on AI Projects

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Abstract

Artificial Intelligence (AI) based software development differs significantly from traditional software development due to its dependence on data, experimentation, and continuously evolving requirements. Selecting an appropriate development methodology therefore plays a critical role in the success of AI projects. This paper presents a comparative analysis of the Agile and Waterfall methodologies in the context of AI software development. It examines how each methodology handles requirement uncertainty, data dependency, model iteration, and feedback cycles commonly encountered in AI projects. Through analytical comparison and industry-oriented observations, the study highlights the limitations of the Waterfall model when applied to dynamic AI systems and emphasizes the advantages of Agile approaches in supporting flexibility, incremental development, and continuous improvement. The paper concludes that Agile methodologies are generally more suitable for AI-based software development, while also acknowledging scenarios where traditional approaches may still be applicable. The findings aim to assist developers, researchers, and organizations in selecting appropriate development practices for AI-driven systems.

Keywords: Agile Methodology, Waterfall Model, Artificial Intelligence, AI Software Development, Software Engineering

Artificial Intelligence in Banking Security

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Abstract

Digital banking has grown so fast lately, and that means we really need better ways to keep financial data safe during online transactions. Traditional security stuff just does not cut it anymore when it comes to spotting those tricky fraud patterns or the new cyber threats that keep popping up. I think artificial intelligence is stepping in here as a big help for banking security, with things like real-time monitoring and automatic *threat* detection that make decisions smarter. It uses machine learning, deep learning, and even *biometric authentication* to pick out *suspicious* activities right away. That way, it can stop financial fraud before it happens and make customer authentication smoother. Some people might worry about how reliable it all is, but it seems to work well in areas like fraud *detection* and *anti-money laundering*. This content looks at how AI applies to banking security overall, including *cybersecurity* and risk management too. There are advantages, sure, like higher accuracy and less operational risk, which builds more trust in digital services. But it also talks about challenges and what might come next for these *AI-driven* solutions. It feels like that part gets a *bit messy* to explain fully.

Keywords: threat, Biometric Authentication, Suspicious, Detection, anti-money, Laundering, Cybersecurity, bit messy, AI-driven, Popping.

Parking Slot Allotment System

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Abstract

Parking Slot Allotment System, is a web-based application designed to make parking slot handling simple and organized. It helps users to check available parking slots and reserve them easily. At the same time, it allows the admin to manage slots, view reservations, and control user details in one place. The main aim of this project is to reduce manual work and provide a clear system for parking management using a simple and user friendly interface. The system is developed using “HTML” and “CSS” for designed the interface. “PHP” for server-side logic, and “MYSQL” for database management. HTML is used to structure thee pages, CSS is used to maintain a consistent design and theme, PHP handles the application logic and form processing, and MYSQL stores all the data such as user details, slot information, and reservation records. All these technologies work together to make the system functional and reliable. The project is divided into two main modules: “User Module” and “Admin Module”. In the User Module, users can view available parking slots, make reservations, check the booking status, and manage their profile. The module focuses on ease of use and clear information so that users can quickly find and book a parking slot without confusion. The Admin Module is used to control the overall system. The admin can add, update, and delete parking slots, view all reservation, manage users, and monitor slot availability. This module helps in maintaining accurate data and smooth operation of the parking system. By separating user and admin functionalities, the project ensures better organization and easier management of parking activities.

Gym Equipment Seller Website

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Abstract

The Gym Equipment Seller Website is a web-based application that allows users to view available gym equipment and purchase them online in a simple and organized way. Users can browse and see gym products such as dumbbells, barbells, cardio machines, benches, and accessories without logging in. To buy any product, users must sign up and log in to the system. After login, users can add products to the cart and place orders securely. This helps in maintaining proper order management and user security. The website is designed with a simple and user-friendly interface, making it easy to navigate and use. The project is developed using HTML, CSS, JavaScript, PHP, and MySQL, ensuring secure storage of user and order details. Overall, the system provides a safe, reliable, and efficient platform for purchasing gym equipment online.

AI and IOT Based Smart Helmet for Two-Wheelers with Accident Detection, Rider Fatigue and Environmental Monitoring

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Abstract

Two-wheeler riders are highly vulnerable to road accidents due to head injuries, rider fatigue, delayed emergency response, and exposure to hazardous environmental conditions. Traditional helmets provide only passive protection and lack intelligent monitoring capabilities. This paper presents an AI and IOT based smart helmet for two-wheelers with accident detection, rider fatigue and environmental monitoring to enhance rider safety through real-time monitoring and automated alerts. The proposed system integrates multiple sensors within the helmet to continuously monitor the rider and surrounding environment. Accelerometer and vibration sensors are used for accident detection, while eye-blink and heart rate sensors monitor rider fatigue and drowsiness. Artificial intelligence techniques are applied to analyze sensor data and predict unsafe riding conditions with improved accuracy. Environmental monitoring is performed using gas, air quality, and temperature sensors to detect hazardous conditions. An IOT-enabled microcontroller processes the sensor data and transmits it to a cloud platform. In the event of an accident or critical rider condition, the system automatically sends alert notifications along with the rider's real-time GPS location to predefined emergency contacts. The proposed system is cost-effective, scalable, and suitable for real-time implementation, significantly improving two-wheeler safety through intelligent monitoring.



St. John's College

Palayamkottai, Tirunelveli.

Re- Accredited by NAAC with 'A' Grade



About Us.

St. John's College, a Christian Educational Institution, established in 1878, has completed one hundred and thirty one years of fruitful service in the cause of higher education. The College is one of the first four oldest Colleges in the then undivided Madras State. A small and unpretentious Anglo-vernacular School established by the Church Missionary Society in 1844 in a hired house in Palayamkottai was the tiny seed from which grew the magnificent St. John's College. This School was shifted to Vannarpettai, a suburb 3 kms from here and it became a College in 1878.

The College was then shifted to Tirunelveli Town in 1880. The Rev Schaffter MA a dedicated British Missionary was the first Principal. He guided the College for a period of 42 years, from 1878 to 1920. Keeping the expansion of the College in mind, the Principal, Rev Young, another committed British Missionary, shifted the College from Tirunelveli Town to the present 50 acre campus at Palayamkottai in 1928.

But for the Rev Young's farsightedness in shifting the college to this vast expanse of land, St. John's College could not have been what it is today with its numerous classrooms, halls of residence, spacious playgrounds, auditoriums, spacious library and adequate room for future expansion of its facilities. Rev GT Selwyn (1937 - 1945), an English Missionary was his successor. A significant addition to the college during the Rev Selwyn's administration was a Worship Centre. Courses in Mathematics, Physics, Chemistry and Logic were offered under Part III of the Intermediate Course. In 1943 Malayalam under Part II and Natural Science under Part III were included. The college was upgraded in 1945 and degree courses in Mathematics and Economics were offered under Part III.

In 1955 university courses were re-organised with the introduction of the one-year pre-university course and the three year degree courses. The first Indian Principal, Mr J Vedasironmani (1946 - 1969) realized that it was the right time to embark on a programme on introduction of new disciplines at the graduate level. In 1957 the college secured affiliations in Physics and Chemistry as major subjects under Part III of B.Sc. degree course. Later, affiliation in Botany (1959) and Zoology (1963) BSc degree courses were obtained.

In 1966, St John's became an affiliated college of the Madurai University. The BA degree course in History and the MSc degree course in Mathematics were started in 1967. The BA degree course in English Literature was introduced in 1969. The MA degree course in English Literature was introduced in July 1971. A residential hostel for post-graduate women students was built in August 1973 with UGC assistance. The MA degree course in Economics was introduced in 1979, BCom in 1980 and MSc Botany in 1981. In 1992, MSc and MPhil in Zoology were introduced. In addition, unaided PGDCA & BSc Computer Science and BSc Electronics Evening Courses were started in 1991, 1992 and 1998 respectively. Since 1990, St. John's has been an affiliated College of Manonmaniam Sundaranar University, Tirunelveli.

ISBN 978-81-993168-2-9



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