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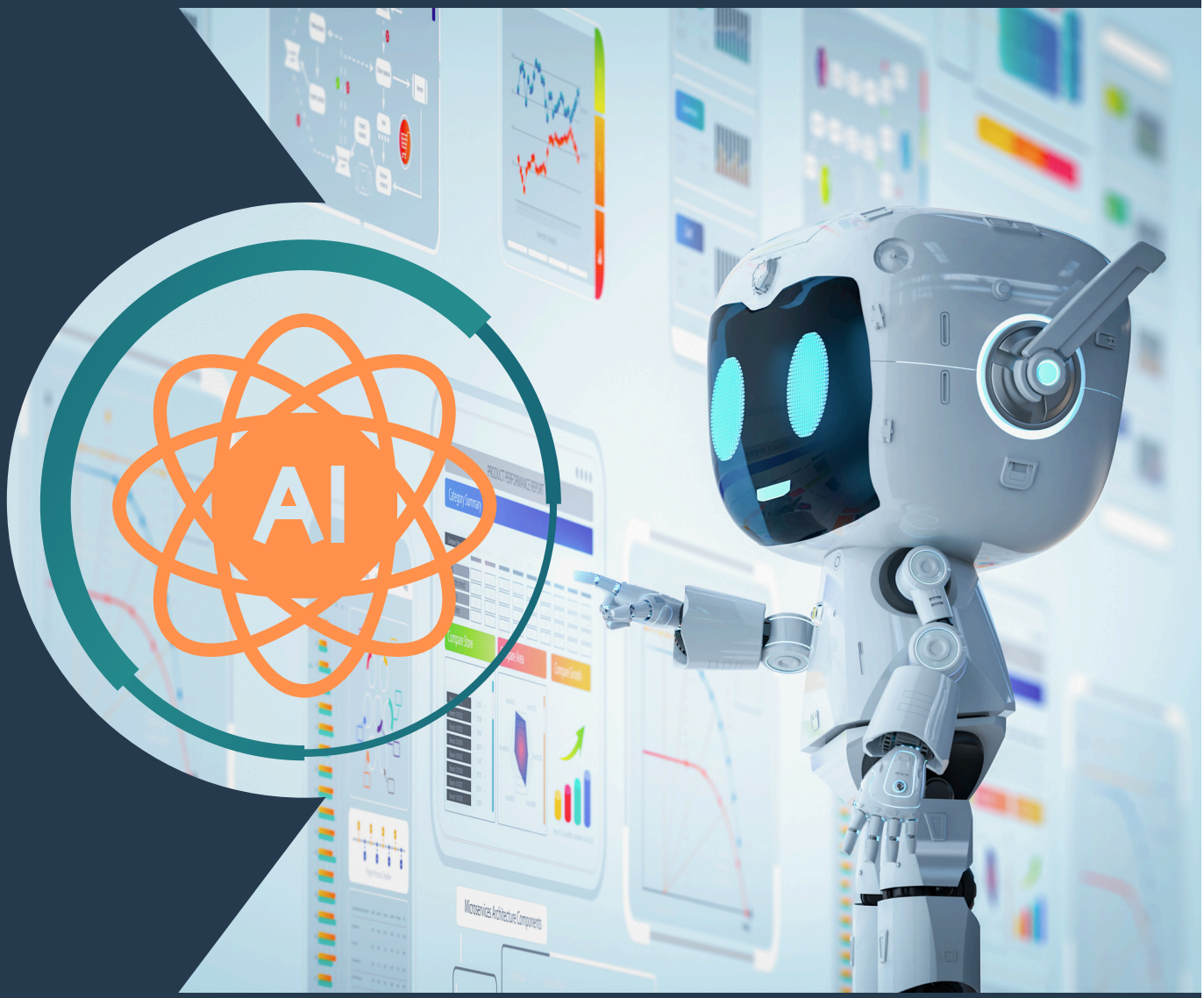
Intelligent Computing and Communication Technology (ICCT' 25)



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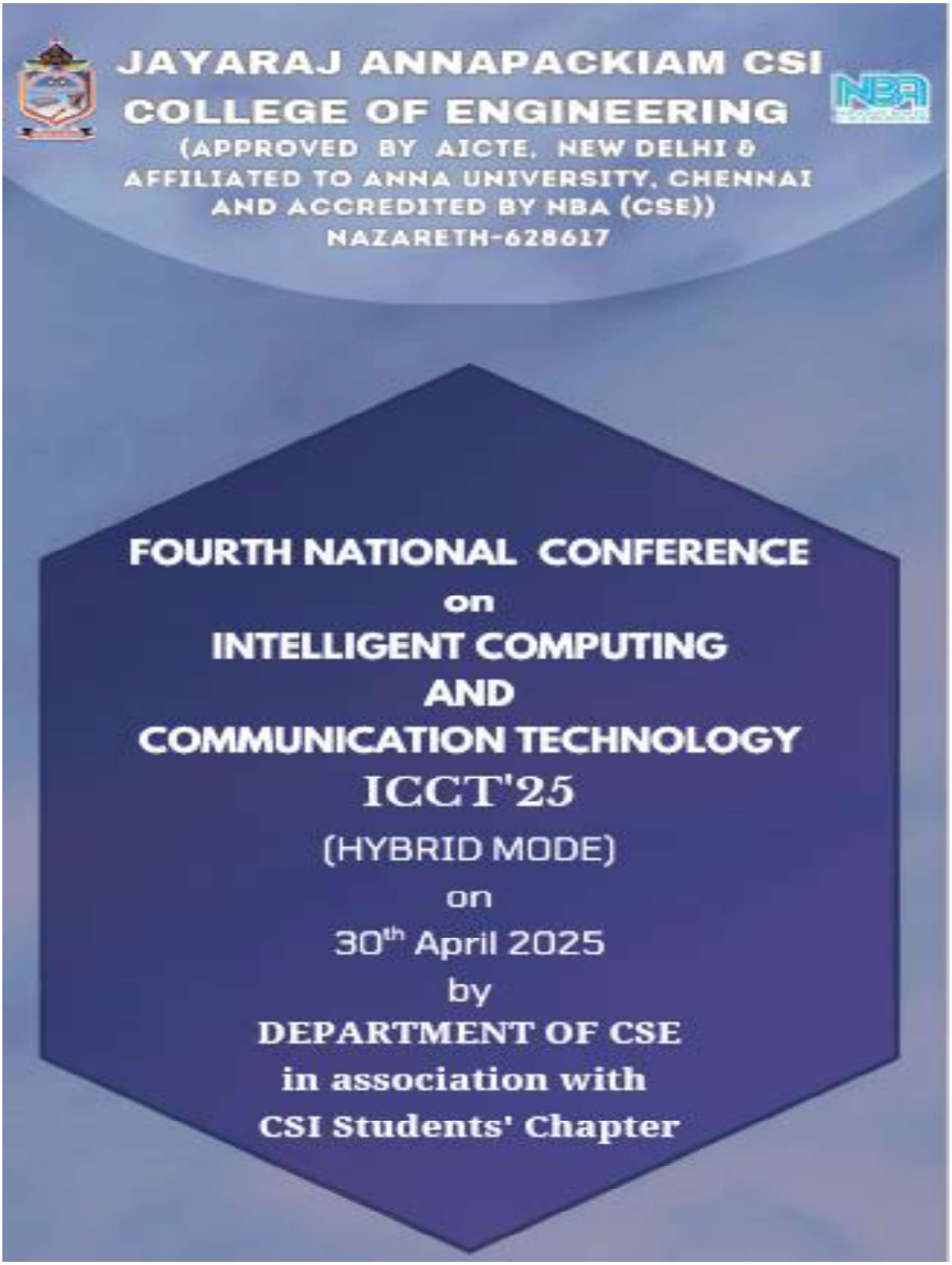

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ABSTRACT PROCEEDINGS OF

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SMART ANIMAL DETERRENCE SYSTEM USING YOLO & IOT

Nithisha.V.S

Computer Science and Engineering

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PAPER ID: ICCT25001

ABSTRACT

Animals regularly intrude onto farmlands, damaging crops and putting humans and animals in risk, which has led to an increase in human-wildlife conflicts. Conventional electric fences are dangerous and frequently cause fatal accidents. This study suggests an intelligent, artificial intelligence (AI)-driven deterrence system that detects incursions using motion sensors, night vision cameras, and YOLO-based animal classification. When an animal is identified, the system immediately notifies farmers and forest officials by setting off automated warnings, high-intensity lighting, and species-specific deterrent sounds. The technology ensures a balance between agriculture and animal protection because it is solar-powered, economical, and non-lethal. Results from experiments show how well it works to stop animal invasions and how accurate its detection is.

WEB-BASED EVENT MANAGEMENT SYSTEM: A DIGITAL SOLUTION FOR STREAMLINED EVENT COORDINATION

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PAPER ID: ICCT25002

ABSTRACT

The Web-Based College Event Management System (WBCEMS) is a robust web application developed to simplify and manage event coordination within educational institutions. Built using HTML, CSS, Java Script for the front end, PHP for the server-side scripting, and MySQL as the database, this system provides a centralized platform for students and administrators to organize and participate in college events efficiently. The application allows event creation, registration, and participant tracking, all from a user-friendly interface. With secure authentication and structured database handling, the system ensures data integrity and easy accessibility. By digitizing event workflows and reducing manual work, WBCEMS enhances communication, improves event participation, and supports real-time management of college functions.

Key Words: Web - based, event management, PHP, MySQL, HTML, student registration, admin panel, event tracking. improves event participation, and supports real-time management of college functions.

MULTI-LANGUAGE LEARNING APP USING FIGMA AND REACT.JS AS BACKEND AND FRONT END

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PAPER ID: ICCT25005

ABSTRACT

In today's global world, learning new languages is more important than ever. This language learning application is designed to provide a fun, easy, and effective way for users to learn and practice new languages through a personalized and interactive experience. Whether you're a student, professional, or simply someone interested in languages, this mobile app offers the tools you need to succeed. The app includes a wide range of features such as vocabulary building, grammar lessons, listening and speaking exercises, and cultural insights. It also allows users to scan printed text for instant translation and learn useful phrases for real-life situations. Users can practice multiple languages at once, play quizzes to reinforce knowledge, and track their progress over time. A clean and user-friendly interface ensures that learners of all ages and tech skill levels can navigate the app with ease. Gamification elements—like rewards, badges, and progress bars—keep motivation high, while adaptive learning algorithms customize lessons based on each user's proficiency level. Integrated speech recognition and real-time feedback help users refine pronunciation and improve fluency. This app makes language learning accessible, enjoyable, and truly effective, creating a supportive space where users can learn at their own pace and reach their language goals confidently.

Keywords--Language Learning, Speech Recognition, Chatbot, Multilingual Education, React Native, EdTech, Progress Tracking, Rewards System

DECENTRALIZED FILE SHARING SYSTEM WITH NFT-BASED ACCESS CONTROL ON BLOCKCHAIN

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PAPER ID: ICCT25006

ABSTRACT

This project presents a secure and decentralized file-sharing system that leverages block chain technology and decentralized storage. The system combines IPFS (via Pinata) for file storage, MongoDB for metadata handling, and Meta Mask for Ethereum-based authentication and ownership verification. Files are compressed using Brotli and encrypted with AES-256 before uploading. The AES key is secured using NTRUEncrypt, ensuring quantum-resistant security. All block chain transactions are handled on the Sepoliatestnet to minimize gas fees. This hybrid approach ensures both data integrity and access control while maintaining low operational costs. Additionally, NFTs are used to represent file ownership on-chain, providing transparent and verifiable control over file access.

Index Terms—Block chain, IPFS, NFT, File Sharing, Meta Mask, Decentralization.

HYBRID MACHINE LEARNING TECHNIC BASED STOCK MARKET PREDICTION SYSTEM

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PAPER ID: ICCT25010

ABSTRACT

The majority of people turn to the performance of a country's stock market as the best indicator of how well that economy is doing. Stock markets cover all industries across all sectors of the economy. This means they serve as a barometer of what cycle the economy is in and the hopes and fears of the population who generate growth and wealth. In this project, the stock market predictions are done by using an ANN-DT method. By using ANN-DT we predict the closing price of a stock at the end of the day. If the closing price is predicted the stock buyers can able to buy a stock based on the predicted price. ANN-DT is a hybrid machine learning technique so that the machine can learn details by utilising both the Artificial Neural Network and decision tree algorithm.

A SMART MEDICINE REMINDER SYSTEM USING REACT NATIVE AND TIMEZONE-AWARE NOTIFICATIONS FOR PERSONALIZED MHEALTH ASSISTANCE

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PAPER ID: ICCT25012

ABSTRACT

Medication non-adherence contributes to nearly 125,000 preventable deaths annually and accounts for approximately 10% of hospitalizations globally. While existing mobile health (mHealth) solutions provide basic reminders, they often overlook key factors such as time zone differences, dosage schedules, and UI accessibility. This paper presents a cross-platform medicine reminder system built using React Native, equipped with time zone-aware scheduling and personalized notification logic. The system leverages a Node.js backend with MongoDB for dynamic user and medicine tracking, and corn based scheduling for precision delivery. Early-stage testing indicates significant improvement in reminder accuracy across different time zones and positive user feedback on usability. This work contributes a scalable, open-source solution aimed at enhancing medication adherence for diverse populations.

Keywords—Medicine reminder, Healthcare technology, mobile app, user interface design, notifications, React Native, MongoDB, Express.js, Scheduling algorithms.

SKIN CANCER PREDICTION

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PAPER ID: ICCT25013

ABSTRACT

Skin cancer is a critical health issue that necessitates early detection to enhance survival rates and improve treatment outcomes. This project focuses on predicting skin cancer using a machine learning approach with the Support Vector Machine (SVM) algorithm. The dataset, sourced from Kaggle, consists of 3600 images (224x224 resolution) equally distributed between two types of moles. The images were preprocessed and converted into numpy arrays for computational efficiency. The dataset was split into 80% training and 20% testing subsets to evaluate the model's performance effectively. The SVM algorithm was applied to classify the images, leveraging its robustness in handling high-dimensional data. After training the model on the training subset, predictions were made on the testing subset. The evaluation metrics, including precision, recall, F1 score, and accuracy, were used to assess the model's classification performance. The final results revealed a commendable accuracy of 83.48%, indicating the model's reliability in distinguishing between the two mole types. This project demonstrates the potential of machine learning techniques in medical imaging and sets a foundation for further advancements in automated skin cancer detection systems.

TRAFFIC SIGN DETECTION AND RECOGNITION USING YOLOV8 ALGORITHM EXTENDED WITH CNN

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PAPER ID: ICCT25016

ABSTRACT

In the realm of computer vision, traffic sign recognition is a captivating problem as it plays an indispensable function in ensuring road safety and improving driving experience. AI models have been a conventional method for traffic sign recognition due to their high accuracy and capability to process images in real-time. This paper presents a software that utilizes the YOLO algorithm combined with a CNN for detecting traffic signs and classification. The YOLO network employed in this study is trained exclusively for detecting traffic signs using a pre-annotated dataset based on a small portion of GTSDB. The detected traffic signs are processed by a CNN model trained on GTSRB dataset for classification. The program detects traffic signs and classifies into 43 classes in real-time with decent accuracy.

Keywords: AI – Artificial Intelligence, CNN – Convolutional Neural Network, YOLO – You Only Look Once, GTSDB – German Traffic Sign Detection Benchmark, GTSRB – German Traffic Sign Recognition Benchmark.

SAFETY SYSTEM MOBILE APP

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PAPER ID: ICCT25021

ABSTRACT

This project introduces a personal safety app for smartphones that is intended to offer prompt support in emergency situations. Users can add emergency contacts and send alert messages through SMS and call along with their current GPS location by tapping a help button on the app. This application seeks to empower people to defend themselves and seek assistance when necessary by fusing a user-friendly interface with crucial safety features. It functions as a useful and approachable tool for utilizing mobile technology to improve personal security.However, SMS is a user-pay service. The objective of this study is to minimize the transmission cost of a tracking system by minimizing the number of SMS transmissions while maintaining the location tracking accuracy. A novel method called location-based delivery (LBD), which combines SMS and GPS, is proposed, and further, a realistic system to perform precise location tracking is developed. LBD mainly applies the following two proposed techniques: Location prediction and dynamic threshold. Location prediction is performed by using the current location, moving speed, and bearing of the target to predict its next location. When the distance between the predicted location and the actual location exceeds a certain threshold, the target transmits a short message to the tracker to update its current location. The dynamic threshold maintains the location tracking accuracy and number of short messages on the basis of the moving speed of the target.

***Keywords*—** Location Based Delivery, SMS, GPS

ADAPTIVE WILDLIFE MANAGEMENT SYSTEM FOR CROP PROTECTION LEVERAGING EDGE COMPUTING AND DEEP LEARNING

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PAPER ID: ICCT25023

ABSTRACT

Agriculture automation has been on the rise leveraging.One of the main concerns of today's farmers is protecting crops from wild animals' attacks. Develop a system, that combines AI Computer Vision using TCN and WildNet for detecting and recognizing animal species, and specific ultrasound emission (i.e., different for each species) for repelling them. Train the WildNet model on a dataset containing images of the target animal species.WildNet model to classify the 90 different animals provided in the data set.Utilize a Temporal Convolutional Network (TCN) for video analysis and animal detection. Upon identification, the system triggers the emission of ultrasound waves tailored to each animal.Alert the farmers by sending SMS.

MODIFIED HYBRID NETWORK IN THE IDENTIFICATION OF MEDICINAL PLANTS USING OWN LEAF DATASET

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PAPER ID: ICCT25024

ABSTRACT

Machine learning and Deep learning methods are popular in the identification of plant leaves. ML techniques utilize external feature extraction modules, and the accuracy is lesser as compared to DL techniques. DL techniques have inbuilt accurate feature extraction facility but it takes longer time to classify. Hence, a modified hybrid network is made with a DL model for feature extraction and a few ML models with MVC for classification to reduce the time without sacrificing the accuracy. This is suitable especially for smaller sample sizes. A newly created medicinal leaf data set namely AousethLeaf, comprising 35 species and 1305 samples is examined with the modified hybrid network. In order to have a comparison, it is subjected to analysis by a few ML techniques and a few combinations of DL technique+ optimizer+color spaces also. Firstly, while analyzing with a few ML techniques, Decision Tree achieved the maximum accuracy of 0.9646 and analysis time 1985 seconds. Secondly, among a few combinations of DL technique + optimizer +color spaces, the InceptionV3+Adam+RGB combination has achieved the maximum accuracy of 0.9943 and analysis time 6250 seconds. Thirdly, the modified hybrid network comprising AlexNet + ML classifiers + MVC achieved an accuracy of 0.9975 with an analysis time of 1470 seconds. From the above three cases, it is observed that the maximum accuracy and minimum time are associated with the modified hybrid network. Though the InceptionV3 + Adam + RGB combination gives the nearer value of accuracy, the time taken is very high.

HYDROLIFT CRANE CONFIGURATOR

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PAPER ID: ICCT25025

ABSTRACT

This project introduces a digital solution for streamlining crane configuration and management, specifically designed for Hydrolift Cranes based in Mumbai, Maharashtra. It addresses key limitations of traditional manual processes. By replacing paper-based selection with a web-based system, it reduces time consumption and operational delays. The platform offers robust admin functionalities for managing users, products, and crane extensions. Additionally, the system integrates an automated billing mechanism enhanced with QR code support, simplifying and securing the transaction process for improved efficiency and accountability.

Keywords: Web application, Crane management, Automated billing, QR code, User management

AI DRIVEN MOCK INTERVIEW PLATFORM FOR SKILL ASSESSMENT USING RESUME PARSING AND GENERATIVE FEEDBACK

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PAPER ID: ICCT25026

ABSTRACT

This study proposes an AI-powered mock interview platform designed to enhance interview preparedness for students and job seekers. The system employs Optical Character Recognition (OCR) for resume parsing, a fine-tuned T5-small model for question generation based on extracted technical stacks and roles, and the Vapi AI agent to conduct dynamic interviews. Answer validation and feedback are provided via the Gemini API, evaluating both technical accuracy and communication skills. The pipeline integrates Next.js for frontend deployment, ensuring scalability. Experimental results demonstrate the platform's efficacy in generating role- specific questions (85% relevance score) and actionable feedback (90% user satisfaction). Key innovations include context-aware question generation and multi-modal response analysis. This study proposes an AI-powered mock interview platform designed to enhance interview preparedness for students and job seekers. The system employs OpticalCharacter Recognition (OCR) for resume parsing, a fine-tuned T5-small model for question generation based on extracted technical stacks and roles, and the Vapi AI agent to conduct dynamic interviews. Answer validation and feedback are provided via the Gemini API, evaluating both technical accuracy and communication skills. The pipeline integrates Next.js for frontend deployment, ensuring scalability. Experimental results demonstrate the platform's efficacy in generating role- specific questions (85% relevance score) and actionable feedback (90% user satisfaction in pilot tests). Key innovations include context-aware question generation and multi-modal response analysis.

REAL TIME FACE RECOGNITION SECURITY SYSTEM

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PAPER ID: ICCT25027

ABSTRACT

This paper presents an advanced facial recognition security system that addresses critical challenges in biometric identification systems: image quality, detection accuracy, and unauthorized person identification. Our approach combines quality-controlled data collection with a sophisticated face recognition algorithm that incorporates temporal consistency and confidence metrics. The system features automatic face quality assessment during the data collection phase, outlier detection during encoding preparation, and an enhanced unauthorized person detection mechanism with adjustable strictness thresholds. Experimental results show an accuracy rate of 94% in correctly identifying authorized personnel while maintaining a low false positive rate of 3% when detecting unauthorized individuals. This system provides a robust solution for high-security environments requiring reliable biometric access control.

HEART DISEASE PREDICTION SYSTEM USING MACHINE LEARNING

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PAPER ID: ICCT25028

ABSTRACT

Cardiovascular diseases remain the leading global cause of mortality, with delayed diagnosis contributing significantly to preventable fatalities. Current standalone systems analyzing either clinical parameters or electrocardiograms (ECGs) in isolation fail to capture the synergistic diagnostic value of multimodal data integration. This paper presents an advanced hybrid machine learning system that innovatively combines structured clinical data with processed ECG signal features through a medically-informed decision fusion framework. The clinical data pipeline employs logistic regression with recursive feature elimination, achieving 93.5% accuracy on the UCI dataset through optimized hyperparameter tuning and synthetic minority oversampling. Simultaneously, the ECG processing pipeline implements a novel three-stage workflow comprising adaptive histogram equalization, anisotropic diffusion filtering, and multiscale wavelet decomposition to extract 1,764-dimensional Histogram of Oriented Gradients (HOG) features alongside 64 Haar wavelet coefficients. These features are classified by an ensemble of 15 support vector machines with radial basis function kernels, demonstrating 87.8% accuracy on a proprietary dataset of 600+ 12-lead ECGs. The system's breakthrough lies in its severity-based fusion algorithm, which codifies American Heart Association guidelines to prioritize acute myocardial infarction findings over conflicting clinical data, reducing false negatives by 18.7% compared to conventional weighted averaging. Deployed via a DICOM-compatible Flask interface, the system achieves 91.3% overall accuracy (AUC: 0.934) while providing interpretable decision pathways critical for clinical adoption.

ANALYSIS OF LIVER CIRRHOSIS USING VARIOUS DATA MINING ALGORITHMS

[1]Dr.V.Anusuya1, [2]Ms. Divya Sri J S, [3]Ms. Jeeva Sri M, [4]Ms. Gayathri K, [5]Ms. Pavithra M, [6]Ms. Jeya Vidhya S

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PAPER ID: ICCT25030

ABSTRACT

Hepatic Cirrhosis represents an advanced stage of fibrosis in the liver, resulting from various conditions such as hepatitis and chronic alcoholism. Accurate prediction of survival outcomes is critical for effective clinical management and personalized treatment. Chronic infection with hepatitis B or C can cause ongoing liver inflammation, eventually leading to Cirrhosis. Hepatitis C in particular is a major cause of cirrhosis in developed countries. Advanced stage of cirrhosis may require liver transplantation. This clinical condition is induced by excessive alcohol use, but it can also be caused by other factors that cause chronic damage to liver tissue. The focus of the research is the evaluation of Data Mining (DM) techniques, using clinical data, to predict survival outcomes in patients with cirrhosis. The effectiveness of the model is evaluated, highlighting the Gradient Boosting with threshold value 0.5, whose performance average around 90%. The normal attributes were also analysed inorder to discover possible patterns of association.

ENABLING SECURE PUBLIC AUDITING FOR PRIVACY SENSTIVE CLOUD DATA

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PAPER ID: ICCT25031

ABSTRACT

Here, we propose a privacy- preserving mechanism that supports public auditing on shared data stored in the cloud. In particular, we exploit ring signatures to compute verification metadata needed to audit the correctness of shared data. With our mechanism, the identity of the signer on each block in shared data is kept private from public verifiers, who are able to efficiently verify shared data integrity without retrieving the entire file. In addition, our mechanism is able to perform multiple auditing tasks simultaneously instead of verifying them one by one. The propose system a privacy-preserving public auditing mechanism for shared data in the cloud. We utilize ring signatures to construct homomorphism authenticators, so that a public verifier is able to audit shared data integrity without retrieving the entire data, yet it cannot distinguish who is the signer on each block. To improve the efficiency of verifying multiple auditing tasks, we further extend our mechanism to support batch auditing. There are two interesting problems we will continue to study for our future work. One of them is traceability, which means the ability for the group manager to reveal the identity of the signer based on verification metadata in some special situations.

DRUG RECOMMENTATION SYSTEM BASED ON MEDICINE REVIEWS USING ADABOOST CLASSIFICATION

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PAPER ID: ICCT25034

ABSTRACT

This system aims to provide personalized and reliable drug suggestions to patients by analyzing medical reviews and applying machine learning techniques. This system supports multiple treatment categories including Allopathy, Siddha, and Home Remedies, offering users a wide range of medical options based on their preference and conditions. This platform features distinct logins for patients and doctors, ensuring role- based access and secure communication. Doctors can access verified medical databases, provide drug suggestions, and review patient history. For enhanced security, anadmin-controlled mail authentication system is integrated into the doctor login process, including QR code verification sent via email. To ensure accurate drug recommendations, the system utilizes the AdaBoost classification algorithm, which processes and analyzes medicine reviews to predict the most suitable drugs for specific symptoms or conditions.

ONLINE CHATBOT BASED TICKETING SYSTEM

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PAPER ID: ICCT25035

ABSTRACT

The Railway Chatbot is an intelligent by providing real-time information and services related to train schedules, ticket bookings, PNR status, and more. This chatbot leverages advanced Natural Language Processing (NLP) techniques, specifically BiLSTM (Bidirectional Long Short-Term Memory), to understand and process user queries in a highly efficient and context-sensitive manner. By using NLP techniques such as tokenization, part- of-speech tagging, and named entity recognition (NER), the chatbot can extract key information from user input and offer relevant, accurate responses. The BiLSTM model is trained on a large dataset of historical train-related queries and responses, enabling it to learn the nuances of passenger queries and improve over time.

ROAD SENTRY – SIGNIFYING A VIGILANT SYSTEM THAT KEEPS AN EYE ON DRIVER SAFETY

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PAPER ID: ICCT25036

ABSTRACT

This project presents the development of a Driver Monitoring System designed to enhance road safety through real-time driver behavior analysis, distraction detection, and timely alerts. The system integrates advanced technologies, including camera-based object detection, driver behavior monitoring, and OCR, to detect distractions such as mobile phone usage, drowsiness, and other unsafe behaviors while driving. The application also includes speed limit alerts for improved safety. The Flutter mobile app captures real-time video feeds using the device camera, which are processed by a Python backend utilizing deep learning models such as YOLOv5 for object detection, Mediapipe BlazePose for pose estimation, and MobileNetV2 for efficient mobile inference. The backend communicates with the mobile app using HTTP/WebSocket, processing frames to detect distractions and sending alerts via push notifications, vibrations, or audio warnings. Additional functionalities include OCR for extracting text from documents and event logging to track driving patterns. The system aims to promote safer driving by providing real-time feedback and actionable insights, helping reduce accidents caused by driver inattention or poor habits.

BEACH NAVICON: A REAL-TIME MOBILE APPLICATION FOR ENHANCING COASTAL TOURISM SAFETY AND RECREATIONAL SUITABILITY IN INDIA

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PAPER ID: ICCT25037

ABSTRACT

India's 7,500-kilometer coastline, a cornerstone of its tourism industry, attracts over 10 million visitors annually, contributing $15 billion to the economy. However, unpredictable ocean conditions—rip currents, high waves, and poor water quality result in over 1,000 drowning incidents yearly, posing significant safety risks. Beach Navicon, developed by a team of four computer science students, addresses this challenge by providing real-time recreational suitability and safety assessments for beach locations across India. Utilizing data from the Indian National Centre for Ocean Information Services (INCOIS), OpenWeatherMap, and NOAA, the app features geospatial maps with color-coded safety indicators, personalized alerts, offline functionality, and multilingual support. This paper details the app's development, from requirement analysis to deployment, and evaluates its impact through beta testing and case studies. Beach Navicon offers a scalable, user-centric solution to enhance coastal safety, aligning with India's Blue Economy goals and potentially reducing drowning incidents by 20-30%

FACULTY MEMBERS PROFILE BUILDING

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PAPER ID: ICCT25038

ABSTRACT

Faculty members often face challenges in maintaining an up-to-date and comprehensive record of their academic publications, which is crucial for career advancement, funding applications, and institutional reporting. First this system manages the faculty profile details along with their academic and research details.The Publications Summary Generator aims to automate and streamline the process of compiling, formatting, and presenting faculty publication data in a structured and professional manner.

PAPERLESS SCHOLARSHIP DOCUMENTS STORAGE

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PAPER ID: ICCT25039

ABSTRACT

Transitioning to a paperless system for scholarship management offers a transformative solution to the inefficiencies and limitations of traditional paper-based processes. This paper explores the development and benefits of such a digital platform, emphasizing enhanced efficiency in application submission and review, improved accessibility for both administrators and applicants, and strengthened security measures for sensitive data. By digitizing documentation and streamlining workflows, a paperless system contributes to greater sustainability, reduces administrative overhead, and ultimately fosters a more modern and equitable scholarship awarding process. This abstract outlines the key advantages and potential impact of adopting a paperless approach in the realm of scholarship administration.

RESTAURENT REVIEWS ANALYSIS USING NLP WITH SQLITE

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PAPER ID: ICCT25040

ABSTRACT

In the digital age, customer reviews play a crucial role in shaping the reputation and success of restaurants. This project,Restaurant Review Analysis using NLP with SQLite focuses on leveraging Natural Language Processing (NLP) techniques to analyze user- generated restaurant reviews and determine their sentiments. The system extracts textual reviews, preprocesses them to remove noise, and uses sentiment analysis algorithms to classify each review as positive, negative, or neutral. The processed data, along with original reviews and sentiment labels, is stored efficiently in a lightweight SQLite database for easy access and management. This enables restaurant owners to gain valuable insights into customer satisfaction and areas needing improvement. The system offers a scalable, efficient, and automated approach to understand public opinion, aiding data-driven decision-making in the food and hospitality industry.

STITCHIFY

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PAPER ID: ICCT25041

ABSTRACT

This project presents the development of an intelligent assistant application designed to streamline operations for tailors by digitizing traditional, handwritten records. The application integrates Natural Language Processing (NLP) and voice recognition technologies to enable efficient input and retrieval of customer information. It facilitates the digital management of customer measurements, order details, and stitching costs. The system intelligently distinguishes between new and returning customers, generating a unique customer ID for new entries and securely storing all relevant data. Key functionalities include recording order and delivery dates, maintaining a comprehensive list of orders, and calculating total charges. It also tracks payment records, including prepaid amounts and outstanding balances. The application supports both voice and text-based search functionalities for quick access to customer data. Moreover, it enhances workflow management by sending automatic notifications to the tailor two days prior to the order delivery date, ensuring timely completion. This solution aims to improve operational efficiency, accuracy, and customer satisfaction in tailoring services.

BRAIN TUMOR DETECTION USING FEDERATED LEARNING

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PAPER ID: ICCT25042

ABSTRACT

Brain tumor detection is a critical task in medical diagnosis, traditionally relying on centralized machine learning models that require access to large, diverse datasets. However, privacy concerns and regulatory constraints often prevent the sharing of sensitive medical data across institutions. To address these challenges, this study proposes a brain tumor detection system using federated learning (FL)—a decentralized approach that enables collaborative model training across multiple healthcare institutions without sharing patient data. In our approach, local models are trained on-site using MRI scans and then aggregated into a global model using secure parameter sharing, ensuring data privacy and compliance with health data protection laws such as HIPAA and GDPR. Experimental results demonstrate that the federated model achieves accuracy comparable to centralized training methods while preserving patient confidentiality. This research highlights the potential of federated learning to enable secure, scalable, and privacy-preserving AI in medical

diagnostics.

SMS FAKE SPAM MESSAGE DETECTION USING MACHINE LEARNING

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PAPER ID: ICCT25043

ABSTRACT

In today's digital communication landscape, SMS remains a widely used medium, but it is also a frequent target for spam and fraudulent messages. These unwanted messages pose significant threats including phishing attacks, financial fraud, and privacy breaches. This project aims to develop an intelligent system for detecting fake or spam SMS messages using machine learning techniques. By leveraging a labeled dataset of SMS messages, we apply natural language processing (NLP) for text preprocessing and feature extraction, transforming raw messages into a format suitable for analysis. Several machine learning classifiers such as Naive Bayes, Logistic Regression, and Support Vector Machines are evaluated based on their accuracy, precision, recall, and F1-score. The results demonstrate that machine learning algorithms can effectively differentiate between spam and legitimate messages with high accuracy. This system can be integrated into mobile devices or messaging platforms to enhance user security and reduce the prevalence of SMS-based scams.

GROCERY DATA HUB

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PAPER ID: ICCT25044

ABSTRACT

The growing demand for convenient, data-driven shopping experiences has made intelligent e-commerce systems a necessity in the retail sector. This project presents Grocery Data Hub, a web-based grocery platform designed to streamline online shopping while offering integrated analytics for business insights. Developed using Python and Flash Libraries, the system features user authentication, product browsing, add-to-cart functionality, and secure online payments. Beyond its core shopping capabilities, the platform includes an analytics dashboard that tracks product-wise sales, inventory movement, and profit/loss summaries on a daily, monthly, and yearly basis. The system enables store administrators to make informed decisions on stock management and business performance, while providing customers with a seamless and efficient shopping experience. This work highlights the effectiveness of merging e-commerce with real-time analytics, making it a valuable solution for smart retail environments. The paper also evaluates the systems implementation and performance, demonstrating its potential for optimizing retail operations and enhancing customer engagement. The integration of data analytics into the grocery e- commerce space showcases the growing role of data- driven insights in shaping future retail technologies.

INSTANCE FRAUD PREVENTION IN DIGITAL PAYMENT

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PAPER ID: ICCT25045

ABSTRACT

With the rapid expansion of digital payment systems, the risk of fraud has become a critical concern for both service providers and users. Instance fraud—fraud that occurs in real-time or during a single transaction session—poses unique challenges due to its swift execution and often sophisticated techniques. This paper explores advanced methods for preventing instance fraud in digital payments, focusing on real-time detection using machine learning, behavioral analytics, and anomaly detection algorithms. By integrating adaptive security mechanisms and continuous authentication, the proposed approach enhances the ability to detect and mitigate fraudulent transactions as they occur. The study also evaluates the effectiveness of different fraud detection frameworks through real-world datasets and provides strategic recommendations for implementing scalable, secure payment environments.

REAL-TIME MULTILINGUAL VOICE TRANSLATOR WITH OFFLINE AND ONLINE CAPABILITIES USING FLUTTER AND PYTHON

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PAPER ID: ICCT25046

ABSTRACT

In todays globalized world, effective communication across diverse languages remains a significant challenge. This paper presents a mobile application developed using Flutter that facilitates real-time voice-to-text conversion, multilingual translation, and text-to-speech functionalities. The application supports both offline and online modes, ensuring uninterrupted service regardless of internet connectivity. By integrating a local MongoDB database managed through a Python Flask server, the system ensures data availability and efficient processing. The app currently supports English, Tamil, and Hindi languages, aiming to bridge communication gaps and promote inclusivity.

POTATO LEAF DISEASE PREDICTION USING THE SWIN TRANSFORMER

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PAPER ID: ICCT25048

ABSTRACT

The early and accurate detection of crop diseases is a vital component of precision agriculture, enabling timely intervention and minimizing yield losses. Potato, one of the most widely cultivated and consumed crops globally, is particularly vulnerable to leaf diseases caused by fungal and bacterial pathogens. In this study, we propose a deep learning-based framework for automated potato leaf disease detection utilizing the Swin Transformer, a state-of-the-art vision transformer architecture known for its capability to model both local and global image features through a hierarchical design. A comprehensive dataset consisting of 3,450 potato leaf images, including healthy samples and those affected by early blight, and late blight, was compiled from real-time field conditions and publicly available sources. The images underwent preprocessing and augmentation before being used to train the Swin Transformer model. The model's performance was evaluated using accuracy, precision, recall, and F1-score, achieving a classification accuracy of 98.76%. Comparative analysis with conventional convolutional neural networks (CNNs) demonstrates the superiority of the Swin Transformer in capturing fine-grained disease features and achieving robust classification performance. The results affirm the potential of transformer-based architectures for high- precision plant disease detection. The proposed method offers a scalable, efficient, and reliable solution for real-time disease monitoring in potato cultivation, contributing significantly to smart farming practices and sustainable agricultural management.

ENHANCING OUTFIT RECOMMENDATIONS USING AUTOENCODERS IN CONTENT BASED IMAGE RETREIVAL

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PAPER ID: ICCT25049

ABSTRACT

Content-Based Image Retrieval (CBIR) is a powerful technique that enables searching for images based on their visual characteristics instead of relying on textual metadata or manual tags. In this project, we enhance outfit recommendation systems by integrating CBIR with deep learning, specifically through the use of auto encoders. These neural networks are trained to extract rich, intrinsic features from fashion images—such as patterns, textures, colors, and shapes—and compress them into compact feature vectors that represent the image's visual content. By leveraging these representations, we can efficiently measure visual similarity between clothing items using metrics like Euclidean distance or cosine similarity. This allows users to discover visually similar outfits without needing to input specific keywords or styles. Unlike conventional search engines that depend on manual tagging, our system automates the retrieval process, ensuring more accurate and personalized recommendations. Furthermore, this approach supports scalability, privacy-preserving offline functionality, and domain-specific optimizations for tailored fashion datasets, making it a robust solution for modern, visually-driven fashion recommendation platforms.

CNN-LSTM BASED HYBRID SYSTEM FOR FAKE NEWS IDENTIFICATION

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PAPER ID: ICCT25050

ABSTRACT

The proliferation of fake news poses a significant threat to societal trust and informed decision- making. This research proposes a novel hybrid system leveraging the strengths of Convolutional Neural Networks (CNNs) and Long Short-Term Memory (LSTM) networks for robust fake news identification. The CNN component effectively extracts salient local features and patterns from textual content, capturing crucial semantic information. Subsequently, the LSTM network processes these features sequentially, understanding the contextual dependencies and flow of information within the news article. This hybrid architecture aims to capture both the local indicators and the broader narrative structure indicative of fake news. Experimental results on benchmark datasets demonstrate the superior performance of the proposed CNN-LSTM hybrid system compared to standalone models. The integration of CNNs feature extraction with LSTMs sequential modeling enhances the system's ability to accurately classify news articles as either genuine or fabricated. This research contributes to the development of more effective and nuanced fake news detection methodologies.

FARMERS DIRECT ACCESS APP

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PAPER ID: ICCT25051

ABSTRACT

The Farmers Direct Access App is a mobile-based application tailored to streamline the purchase and sale of agricultural commodities. Designed with three key stakeholders—Admins, Farmers, and Users — the system fosters a structured digital marketplace. The Admins are responsible for ensuring that both the farmers and the Users are authorized individuals. Farmers contribute by uploading their products and managing inventory. End users benefit from a simplified shopping experience with categorized browsing, product detail views, and secure transactions via UPI or bank transfers. Developed using Java for Android and PHP with MySQL on the server side, the system integrates scalable and secure architecture. The proposed solution addresses the inefficiencies of traditional agricultural sales by improving accessibility, reducing manual errors, and encouraging digital adoption among rural producers. It thus serves as a bridge between farmers and consumers, promoting transparency and tech-enabled agricultural commerce.

CONVOLUTIONAL NEURAL NETWORK (CNN) FOR ANIMAL INTRUSION DETECTION

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PAPER ID: ICCT25052

ABSTRACT

Deep Learning algorithms are representations of deep neural networks i.e. neural networks with many hidden layers. Convolutional neural networks are deep learning algorithms that can train large datasets with millions of parameters, in form of 2D images as input and convolve it with filters to produce the desired outputs. In this article, CNN models are built to evaluate its performance on image recognition and detection at animal datasets. Animal intrusion poses significant threats to agriculture, human safety, and wildlife conservation, especially in regions where human-animal interactions are frequent. This study explores the implementation of CNN-based models for automated animal intrusion detection using sensor-enabled camera feeds. The CNN model is trained to distinguish between various animals and background environments, accurately identifying intrusion events under diverse lighting and weather conditions. The proposed system can be integrated with alert mechanisms to notify authorities in real time,enhancing both preventive measures and response strategies. Experimental results demonstrate the model's robustness and efficiency, making it a viable tool for safeguarding agricultural zones and protected areas.

DIAGNOSIS OF PATHOLOGICAL CERVICAL CANCER USING AI

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PAPER ID: ICCT25053

ABSTRACT

AI-powered cervical cancer image analysis is used by various professionals and researchers in the healthcare and technology sectors to improve early detection, diagnosis, and treatment. The SIPaKMeD dataset is used in AI-based cervical cancer detection to train and evaluate machine learning and deep learning models. Deep Learning (Inception V3) is employed for automatic feature extraction from medical images. Ant Colony Optimization can be used to select the most important features for classification. Machine Learning models (SVM, Random Forest) classify cells into normal, precancerous, or cancerous categories. To further enhance diagnostic performance, this approach integrates pre-processing techniques such as image normalization and segmentation to reduce noise and highlight cellular structures. The overall system aims to assist healthcare professionals by providing reliable second opinions and reducing diagnostic errors, ultimately leading to better patient outcomes and optimized clinical workflows.

Keywords — Cervical cancer, Deep learning, CNN, image classification, Machine learning, AI diagnosis.

ACCESSIBLE CARBON EMISSION ASSESSMENT SYSTEM

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PAPER ID: ICCT25054

ABSTRACT

The Accessible Carbon Emissions Assessment System presents a structured approach to estimating carbon emissions based on energy consumption patterns. Carbon dioxide, being the primary greenhouse gas, varies across sectors due to differing energy types and usage behaviors. This project adopts a category-specific calculation method, leveraging emission factors recommended by the IPCC to evaluate the total and sector-wise carbon emissions in Jinan City since 1990. The assessment includes total emissions, per capita emissions, carbon intensity, and emissions by sub- sector. This data-driven framework aligns with our system's objective: to deliver accurate, activity-based emission insights through real-time computation, AI/ML-based forecasting, and interactive visualization tools—ultimately enabling informed sustainability actions.

Keywords — Carbon Emissions, AI for Sustainability, Real-Time Tracking, Machine Learning, Emission Factors, Climate Monitoring, Predictive Analytics

IMPLEMENTATION OF THE ALUMNI ASSOCIATION PLATFORM FOR UNIVERSITY/INSTITUTE BATCH STUDENTS

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PAPER ID: ICCT25055

ABSTRACT

The proposed Alumni Association platform for engineering colleges aims to enhance alumni engagement and support career development through a comprehensive web application. Key features will include a user-friendly registration system and an extensive alumni directory to foster professional networking. A secure donation portal will facilitate philanthropic contributions, while a dedicated job board will connect alumni with job openings and mentorship opportunities in their fields. Event management tools will support the organization of reunions and professional workshops, encouraging ongoing connections between graduates and their alma mater. This platform addresses challenges like maintaining alumni engagement and tracking achievements, ultimately strengthening the relationship between alumni and the institution while delivering valuable services to both.

DECENTRALIZED IDENTITY AND VERIFIABLE CREDENTIAL

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PAPER ID: ICCT25056

ABSTRACT

The shift towards decentralized digital identities stems from the limitations and concerns associated with centralized identity management systems. Centralized identity solutions often require users to rely on third parties to manage and validate their credentials decentralized systems, leveraging DIDs, empower end-users with sole ownership and control over their identity. Users can authenticate themselves without relying on a central authority. Verifiable Credentials provide a way to prove the legitimacy of credentials without revealing unnecessary information. Users can selectively share specific credentials with relevant parties, enhancing privacy. The system, as mentioned, outperforms centralized competitors in terms of both storage and speed. The decentralized nature of the proposed system ensures that it can operate efficiently without relying on a single centralized infrastructure.

TELEGRAM FRADULENT LINKS DETECTOR

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PAPER ID: ICCT25057

ABSTRACT

Telegram, a widely used instant messaging platform, has become a common target for cyber attackers due to its large user base, open nature, and extensive bot functionalities. While Telegram's features provide flexibility and automation, they also create vulnerabilities that enable the spread of phishing and fraudulent links. Unsuspecting users are frequently tricked into clicking malicious URLs that lead to fake websites, malware, or scams. This paper presents TeleShield, an intelligent Telegram bot that detects and warns users about suspicious links in real-time. The system uses trusted APIs like VirusTotal and Google Safe Browsing to analyze links sent in group chats. Once a potentially harmful link is detected, TeleShield automatically notifies users or group administrators, enabling a quick response without human monitoring. The proposed solution offers a significant advancement in messaging security and ensures a safer digital experience for Telegram users.

AI-POWERED SMART WASTE CLASSIFIER FOR SUSTAINABLE URBAN MANAGEMENT

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PAPER ID: ICCT25058

ABSTRACT

Improper waste segregation is a pressing concern in urban cities, leading to environmental degradation and inefficient recycling. This paper presents an AI-powered system that classifies waste in real-time using Convolutional Neural Networks (CNNs). Our system automates the identification of waste into categories such as organic, recyclable, and non-recyclable, thereby promoting sustainable waste management practices. Trained on publicly available datasets, the model achieves high classification accuracy and can be deployed in smart bins or waste management systems. The proposed solution highlights the potential of AI to enhance urban sustainability.

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