

# **MADALA CHAITANYA PRABHU RESEARCH RECORD**

## **1. IPL PLAYERS COST PAY PREDICTION USING MACHINE LEARNING TECHNIQUES - ( ICAISS 2023 ).**

This research proves that player compensation in the IPL is closely linked to on-field performance, though with team-wise variations. By reviewing existing literature on sports salaries, IPL's pay structure, and past studies, this study explores the pay-performance dynamic in the league. Using secondary data, analyzed through descriptive statistics and regression techniques, the findings reveal a generally positive correlation between player pay and performance. This underscores the merit-based nature of most IPL contracts, while also highlighting the complexities within team strategies and individual valuation.

## **2. INSTAGRAM-DRIVEN SOCIAL MEDIA TREND FORECASTING WITH MACHINE LEARNING ALGORITHM USING LIVE DATASET ( ICDSAAI2023 )**

This research introduces Instagram trend analysis and prediction can be achieved using data analytics and machine learning techniques to examine patterns, behaviours, and content trends on the Instagram platform. Social media platforms, especially Instagram, have become one of the major sources of data for trend forecasting. This requires understanding trends to allow Instagram users to stay relevant to the current trends and current popularity. This is helpful for content creators and business purposes, etc. By this, the users can also be more beneficial to the content creator, identifying various trends that occur and are followed in social media. It helps business people make decisions. Instagram Trend Analysis results in identifying future trends earlier, and with the help of data-driven decision-making.

## **3. SAFETY MECHANISM FOR SHREDDER MACHINE USING COMPUTER VISION ( ICIMIA2023 )**

This research demonstrates the potential of AI-based safety systems in enhancing worker protection within industrial settings. A novel mechanism has been developed and integrated with shredder machines to proactively detect and prevent workplace hazards. Utilizing the OpenCV library, the system accurately captures and monitors hand movements, identifying risks in real time. By combining object detection models with machine control systems, the study introduces a smart, automated solution that significantly reduces the likelihood of accidents. This approach not only prioritizes worker safety but also showcases the broader application of computer vision in industrial automation, paving the way for more secure and intelligent manufacturing environments.

**4. WEATHER REPORT ANALYSIS PREDICTION USING GRADIENT BOOSTING AND DATA ANALYTICS – ( ICDSAAI2023 )**

This research explores the application of gradient-boosting algorithms for accurate and reliable weather prediction, a critical need for various industries and daily operations. Leveraging historical weather data, the model is trained on features such as temperature, humidity, wind speed, and atmospheric pressure. Despite the inherent complexity and chaotic nature of atmospheric conditions, the gradient-boosting approach effectively captures intricate data patterns. The study demonstrates how data science techniques can enhance the precision of weather forecasting by modeling non-linear relationships.

**5. STOCK MARKET PROFIT PREDICTION USING MACHINE LEARNING ALGORITHMS AND VISUALIZATION FOR LIVE DATA - ( ICDSAAI2023 ).**

This research focuses on stock market prediction analysis to assist investors in making informed decisions based on real-time market trends. By analyzing live stock datasets, the study identifies patterns and fluctuations influenced by business dynamics, marketing strategies, and consumer demand. Various data visualization tools such as charts, graphs, and numerical metrics are used to interpret stock behaviors and forecast future movements. The work underscores the stock market's vital role in daily life and aims to enhance profit prediction accuracy through data-driven insights.

**6. A DEEP LEARNING DIVE INTO PREDICTING PNEUMONIA DISEASE USING ANN AND CNN TECHNIQUES – ( ICETCI 2024 )**

This research presents an AI-driven solution for early pneumonia detection using deep learning techniques, specifically CNN and ANN models. By integrating X-ray image analysis into a user-friendly web interface, the system enables users to upload scans for instant preliminary diagnosis. This approach offers a cost-effective, accessible tool that supports timely medical intervention, particularly beneficial in remote or underserved areas. The model enhances diagnostic accuracy and showcases the transformative role of AI in modern healthcare.

**7. STOP-LOSS HEDGING STRATEGY FOR NSE STOCKS USING REAL-TIME MARKET DATA WITH MACHINE LEARNING MODEL - (ICMSCI-2025)**

This is collaborative research work with IIT Madras BSc Data Science students, introducing an AI-powered Stop-Loss Hedging Strategy aimed at minimizing losses and maximizing returns for NSE stock portfolios. Leveraging LSTM neural networks and real-time market data, the system predicts stock price movements and dynamically adjusts stop-loss thresholds. It integrates hedging mechanisms such as short selling and put options to protect against market downturns. Multiple machine learning models were evaluated, with the Decision Tree achieving the highest accuracy of 99.54%. The adaptive, automated approach offers robust risk management and profit optimization, particularly benefiting retail investors while advancing the intersection of AI and financial strategy.

## **8. HYDROSAVVY: MODERNIZING AGRICULTURE WITH INTELLIGENT IRRIGATION SOLUTIONS USING IOT**

This research introduces a new term called **HydroSavvy**, an intelligent irrigation system empowering farmer to leverage AI for sustainable water management. This research work was selected under the prestigious **INDIAai Fellowship**. The system combines IoT, AI, and advanced sensors to optimize water usage, enhance crop yield, and support farmers who traditionally lack access to such technology. Real-time soil moisture sensors, flow meters, and leak detection ensure water efficiency, while a solar-powered, battery-backed solution operates 24/7, even in low-internet regions. A multilingual AI mobile app with voice commands assists farmers in tracking consumption, logging activities, and receiving water-saving insights. Weather API integration prevents over-irrigation, while machine learning models predict future irrigation needs. This innovation bridges the gap between farmers and AI, promoting sustainability and revolutionizing the agricultural industry.

## **9. STOCK MARKET TREND ANALYSIS AND PREDICTION USING SENTIMENT ANALYSIS - ( ICDSAAI2025 )**

This research work addresses the complexity of stock market prediction by integrating sentiment analysis with machine learning models. Traditional techniques often overlook external, sentiment-driven factors, which limit prediction accuracy. The proposed approach utilizes NLP to extract sentiment features from news, social media, and market reports, enhancing stock trend forecasting. Evaluation results reveal that incorporating sentiment data significantly improves prediction performance over conventional methods. This study demonstrates the potential of sentiment analysis in reshaping financial market predictions. The research opens pathways for future advancements in data-driven stock market analytics.

## **10. AGRI-SMARTHUB: A MULTILINGUAL INTEGRATED PLATFORM FOR COMPREHENSIVE FARMING SOLUTIONS AND SUPPORT - ( ICTMIM2025 )**

This research presents an integrated web platform combining machine learning and web development to address agricultural challenges. It features a crop recommendation system, yield prediction model, and a CNN-based leaf disease detection. The platform supports multilingual access and uses RAG to help farmers query government PDFs in regional languages. “Agri reels” provide visual guidance on farming practices. Designed for smartphone accessibility, it empowers farmers with tools for increased productivity and sustainability. This solution bridges the gap between technology and agriculture to enhance food security amid climate change.

## **11. EFFICIENT LEUKEMIA DETECTION FROM BLOOD IMAGES USING MOBILENET**

*... Accepted, pending publication*

This research introduces an AI-powered diagnostic system for Acute Lymphoblastic Leukemia (ALL), a severe condition marked by abnormal white blood cell production that weakens the immune system. Utilizing Convolutional Neural Networks (CNN), the model analyzes microscopic blood images to accurately detect leukemia and classify it into early pre-B and pro-B stages. The application includes error-handling for invalid image uploads and provides stage-wise disease insights to support informed clinical decisions. Designed for healthcare professionals, the system eliminates manual analysis, enabling faster, more accurate diagnoses and improved patient care outcomes.

## **12. MUSIC RECOMMENDATION BASED ON REAL-TIME EMOTIONS USING DEEP LEARNING- ( ICICI2025 )**

*..... Accepted, pending publication*

This research proves that music can deeply reflect and influence human emotions. We present a Windows application that personalizes music recommendations based on the user's real-time emotional state, detected using CNNs trained on the FER2013 dataset. By analyzing facial expressions through a webcam, the system suggests mood-matching songs in Telugu, Tamil, or English. Users can view playback history, switch languages, and enjoy a password-free login for simplicity. The application's scalable design supports future upgrades like voice tone analysis and a broader music library. This innovation bridges emotion and technology, enabling smarter, more empathetic human-computer interactions.

## **13. AUTOMATED DISEASE DETECTION AND MEDICATION TRACING SYSTEM USING BIOGPT**

*..... Accepted, pending publication*

This research presents an AI-driven healthcare system that integrates BioGPT—a specialized biomedical language model—with deep learning to enable real-time disease detection and medication monitoring. By analyzing patient symptoms, medical history, and diagnostic reports, the system delivers accurate predictions, verifies prescriptions for drug interactions, and ensures adherence to treatment plans. It facilitates auto-generation of prescriptions, real-time health monitoring, and timely consultations by enabling appointment scheduling based on AI diagnosis. Combining NLP, deep learning, and live medical data, the model significantly enhances diagnostic accuracy, reduces human error, and promotes efficient, digitally integrated healthcare practices.

#### **14. ETHEREAL TRACE: AI-POWERED PERSON FINDER**

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This research outlines the development of a web-based missing person case management system built on the Django framework, enabling users to register cases, upload photos, and perform image-based searches. Utilizing Python's face-recognition library, the backend supports real-time image matching to identify potential matches from the database. The application features a user-friendly interface accessible to both the public and law enforcement, streamlining case retrieval and information sharing. Tested successfully across diverse scenarios, the system proved effective in controlled environments. Future enhancements aim to integrate machine learning for improved recognition of aged or low-quality images, further accelerating the search process.

#### **15. AI-BOT POWERED EMOTION DETECTION AND MENTAL WELLNESS SYSTEM WITH FACIAL & VOICE ANALYSIS FOR PERSONALIZED RECOMMENDATIONS**

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This research introduces an innovative Emotion-Based Frequency Recommendation and Healing System that utilizes speech and facial analysis to address users' emotional well-being. By applying machine learning algorithms, the system detects core emotions such as happiness, sadness, fear, anger, surprise, disgust, and neutrality in real time. Based on the detected emotion, it recommends personalized therapeutic interventions like binaural beats, isochronic tones, guided meditations, or engaging content such as jokes, songs, and psychological activities. The system is designed for adaptive emotional monitoring, offering timely support to users experiencing emotional fluctuations. This paper details the system's architecture, methodology, and performance, highlighting its potential in promoting mental and emotional health.

