



MALLA REDDY ENGINEERING COLLEGE FOR WOMEN

Autonomous Institution—UGC, Govt. of India

Programmes Accredited by NBA & NAAC with 'A+' Grade

Approved by AICTE, Affiliated to JNTUH, ISO 9001:2015 Certified Institution

National Ranking by NIRF Innovation-Rank band(151-300), MHRD, Govt. of India
Maisammaguda, Dhulapally, Secunderabad- 500 010, Telangana

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**Under
Student Chapter CSI, IEEE & ISTE**

INFO SPARK

HALF YEARLY TECHNICAL MAGAZINE

**DEPARTMENT OF
CSE-AIML**

CSE-AIML

www.mallareddyecw.com

MESSAGES

Founder Chairman's Message

**Ch. Malla Reddy**

Founder Chairman, MRGI
Hon'ble MLA, Govt. of
Telangana State

I congratulate the department of CSE-AIML, MRECW for bringing out the issue of the prestigious half yearly department **INFOSPARK** under A.Y: 2025-26, I am sure that the magazine will provide a platform to the students and faculty members to expand their technical knowledge and sharpen their hidden literary talent and will also strengthen the all-round development of the students. I am hopeful that this small piece of literary work shall not only develop the taste for reading among students but also develop a sense of belonging to the institution as well. My congratulations to the editorial board who took the responsibility for the arduous task most effectively. I extend best wishes for the success of this endeavor.

Principal's Message

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**Dr. Y. Madhavee Latha**

Principal

Hod's Message

It is an occasion of great pride and satisfaction for the department CSE-AIML, MRECW to bring out the issue of the half yearly of **INFOSPARK** under A.Y:2025-26, it gives me immense pleasure to note that the response to the magazine has been over whelming. The wide spectrum of articles gives us a sense of pride that our students and faculties possess creative potential and original thinking in ample measures. Each article is entertaining interesting and absorbing. I applaud the contributors for their stimulated thoughts and varied hues in articles contributed by them.

**Dr. M. Narendhar**

HOD-CSE (AIML)

DEPARTMENT VISION

A center of excellence in education and research, providing quality learning through the integration of AI and ML, fostering innovation, collaboration between academia and global industry, and empowering women to drive societal advancement.

Vision

**DEPARTMENT MISSION**

- To inculcate professional and personal growth with a strong academic and practical background in the area of artificial intelligence, with an emphasis on current trends in software development, making them industry-ready professionals with social ethics.
- To empower the students in attaining sound technical knowledge with necessitated trainings and certifications in the area of AI & ML.

Mission

**ABOUT THE DEPARTMENT**

The Dept. of CSE (AI&ML) with an intake of 300 in B.Tech Programme. The programmes ensure that the student effectively meets the highest benchmarks of competence required by the industry. The Dept has state of the art laboratories with latest softwares like Windows 2008, Visual Studio 2012, Eclipse, WinRunner, QTP, J2EE, .NET, Fedora & Weka Tool. The Dept established IEEE & ISTE student chapters and Dept. Technical Association- CYNOSURES under which it organizes National level Technical Symposium - FUTURE SASTRA and State level Technical Symposium MEDHA every academic year and Student Development Programmes like Workshop on Web Designing, Android & its Application, ADOBE PhotoShop, Ethical Hacking and HTML5. The Department also organizes Pre-placement training programmes on C-Skills, Python Skills Java Skills and Project Based training programmes on C, Python, C++, JAVA, Machine Learning, Deep Learning, Natural Language Processing and Web Technologies and also organizes Intra College Student Conferences on Network Security and Data Base Management Systems and Recent Advancements in Computer Science and also organizes regular student seminar sessions of two hours per week for I - IV B.Tech student to enhance their all-round performance. To provide value added certification courses to students, The Dept. established Micro Soft Innovation Center which offers Micro Soft Certification, CISCO Networking Academy which offers CISCO Certification and in association with ORACLE Corporation, India, It offers Java Certification and CORSERA certifications in advanced technologies like , Machine Learning, Deep Learning, Natural Language Processing, etc . The Dept. also offers Business English Certification (BEC) with the help of Center for Development of Communication Skills.

PO'S

PO1	Engineering knowledge	Apply knowledge of mathematics, natural science, computing, engineering fundamentals and an engineering specialization as specified in WK1 to WK4 respectively to develop to the solution of complex engineering problems.
PO2	Problem analysis	Identify, formulate, review research literature and analyze complex engineering problems reaching substantiated conclusions with consideration for sustainable development. (WK1 to WK4)
PO3	Design/development of solutions	Design creative solutions for complex engineering problems and design/develop systems/components/processes to meet identified needs with consideration for the public health and safety, whole-life cost, net zero carbon, culture, society and environment as required. (WK5)
PO4	Conduct investigations of complex problems	Conduct investigations of complex engineering problems using research-based knowledge including design of experiments, modelling, analysis & interpretation of data to provide valid conclusions. (WK8).
PO5	Engineering tool usage	Create, select and apply appropriate techniques, resources and modern engineering & IT tools, including prediction and modelling recognizing their limitations to solve complex engineering problems. (WK2 and WK6)
PO6	The Engineer and The World	Analyze and evaluate societal and environmental aspects while solving complex engineering problems for its impact on sustainability with reference to economy, health, safety, legal framework, culture and environment. (WK1, WK5, and WK7).
PO7	Ethics	Apply ethical principles and commit to professional ethics, human values, diversity and inclusion; adhere to national & international laws. (WK9)
PO8	Individual and Collaborative Team work	Function effectively as an individual, and as a member or leader in diverse/multi-disciplinary teams
PO9	Communication	Communicate effectively and inclusively within the engineering community and society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations considering cultural, language, and learning differences
PO10	Project management and finance	Apply knowledge and understanding of engineering management principles and economic decision-making and apply these to one's own work, as a member and leader in a team, and to manage projects and in multidisciplinary environments.
PO11	Life-long learning	Recognize the need for, and have the preparation and ability for i) independent and life-long learning ii) adaptability to new and emerging technologies and iii) critical thinking in the broadest context of technological change. (WK8)

PSO'S

The graduates of the department will attain:

PSO1

Understand a range of analytical, logical - Programming languages, architecture, construction, and design underlying the field of AI and ML and its related disciplinary areas.

PSO2

Ability to acquire knowledge in analysis, design, and development of human perception, Artificial Intelligence, Machine Learning, and data analytics in terms of real-world problems to meet future challenges

PSO3

Develop computational knowledge and project development skills using innovative tools and practices related to optimization techniques, pattern analysis, and speech recognition for the efficient design of computer-based systems of varying complexity to solve problems in the areas related to deep learning, machine learning, and artificial intelligence.

PEO'S

PEO1-Professional Enhancement

To gain familiar knowledge and to contribute theoretical, mathematical, scientific foundation and logical learning to the students with well-structured course outline by anticipating changing trends in Artificial Intelligence & Machine Learning.

PEO2 - Core Competence

To develop students with in-depth knowledge of Artificial Intelligence and exhibit high standards with regard to applications of AI techniques in intelligent agents, expert systems, artificial neural networks, and other machine learning models to meet the agile industrial requirements extensively.

PEO3 - Technical Accomplishments

To provide a strong foundation in embracing students learning to meet the ever-changing developments in artificial intelligence and machine learning.

PEO4 - Professionalism

To pursue their professional careers for self-advancement while meeting the requirements for professional developers, entrepreneurs, research, and development in order to meet the societal needs.

PEO5 - Learning Environment

To promote collaborative learning and the spirit of teamwork, interpersonal skills, and projects through multidisciplinary AI-based innovative product development and diverse professional ethics.

FACULTY ARTICLES

Generative AI: Transforming Creativity and Automation

Generative Artificial Intelligence (AI) marks a major advancement in computational creativity and automation. Unlike traditional AI systems that only classify or predict based on existing data, generative models can produce entirely new and original content such as text, images, audio, code, and 3D structures. This innovation has transformed how industries approach creativity, design, and problem-solving, making AI not just a tool for analysis but also for creation and innovation.

At the core of generative AI are deep learning architectures like Generative Adversarial Networks (GANs) and Transformer-based models such as GPT, DALL·E, and Stable Diffusion. GANs function through a generator–discriminator setup where two neural networks compete to create realistic data, while Transformer models use attention mechanisms to understand context and generate coherent outputs across multiple formats. These technologies power applications in diverse fields—healthcare (drug discovery and molecule generation), entertainment (scriptwriting and music composition), engineering (automated design), and education (personalized learning and content creation).

However, alongside its benefits, generative AI also presents ethical and societal challenges, including misinformation, copyright violations, data bias, and authenticity concerns. To address these issues, the development of responsible AI frameworks emphasizing transparency, fairness, and accountability is essential. Techniques like explainability and watermarking can help ensure safe and ethical AI use. Evaluation metrics such as creativity, coherence, fidelity, and computational measures like Fréchet Inception Distance (FID) and BLEU scores are used to assess generative models. Current research focuses on improving interpretability and efficiency while maintaining quality and diversity in AI-generated outputs.

Dr. Sumaiya Samreen
Asst. Professor, CSE-AIML



Quantum-Inspired MPA-LSTM for Chronic Kidney Disease Detection

Chronic Kidney Disease (CKD) is a continual decline of the kidney working time being and it is a progressive condition. The main problem with CKD is, it is asymptomatic in its early stages, this makes the early detection challenging. In order to detect the symptoms of the disease and to figure out the exact stage of the disease advance technologies have been introduced. The traditional methods failed to diagnosing the disease accurately in early stage. The paper proposed a Quantum Inspired Marine Predator Algorithm (QIMPA) in order to predict and classify the chronic kidney disease. This algorithm is employed with the marine predators using Brownian and Levy flights that uses hunting strategies. This strategy works in three phases, firstly, prey's movements and strategies are noted how it escapes from the predator, then a balanced approach is created between predator and prey. Finally, in this phase, optimization process produces a Levy flight pattern to capture the predator and prey moves at low velocity. Long Short-Term Memory (LSTM) is utilized for the classification, it works by capturing the long-range values of features that enhances the diagnosing kidney disease. The proposed QIMPA model obtained 99.04% for CKD dataset compared to the existing methods.

Dr.T.Srikanth
Associate Professor,CSE-AIML



STUDENT ARTICLES

EduBot: An Emotion-Aware Learning Assistant for Personalized Education

The EduBot is an AI-powered learning assistant that enhances digital education by recognizing and responding to student emotions in real time. In today's virtual classrooms, maintaining engagement and understanding students' feelings is a growing challenge. EduBot addresses this by introducing emotion-aware interaction, creating personalized learning experiences that adapt to each learner's mood and understanding level. The main objective of EduBot is to build an intelligent tutor that analyzes facial expressions, voice tone, and text inputs to identify whether a student is attentive, confused, or disinterested. Based on these cues, the system adjusts its teaching strategy—simplifying explanations, offering motivation, or changing content delivery style to sustain engagement.

Datasets such as FER2013 (facial emotion) and RAVDESS (speech emotion) were used, along with sentiment-labeled text data. Models like CNNs for facial recognition, RNNs for voice tone detection, and BERT for text sentiment analysis were combined into a multimodal deep learning framework. A fusion module integrates outputs from these models, while reinforcement learning ensures continuous improvement in adapting responses. The user interface, built using Python and Streamlit, provides dashboards for educators to visualize emotion patterns and student progress.

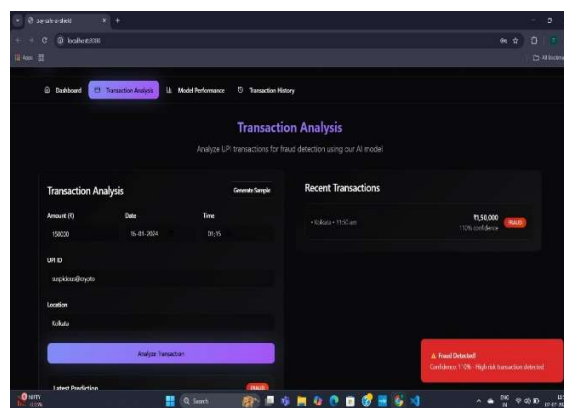
Fariha Naaz
22RH1A6653



PaySafe AI: Securing UPI Transactions with Machine Learning Intelligence

PaySafe AI is an innovative system designed to enhance the security of Unified Payments Interface (UPI) transactions by leveraging the power of machine learning and artificial intelligence. With the rapid growth of digital payments in India, UPI has become a prime target for fraudulent activities such as phishing, unauthorized access, and transaction manipulation. PaySafe AI aims to address these challenges by using intelligent algorithms that can detect, analyze, and prevent fraudulent behavior in real time. The system continuously monitors user activity, transaction patterns, and device information to identify suspicious transactions that deviate from normal behavior. By training models using historical data, it learns to differentiate between genuine and fraudulent transactions with high accuracy.

The architecture of PaySafe AI combines multiple machine learning techniques such as Convolutional Neural Networks (CNN), Random Forest, and Logistic Regression to extract meaningful features from transaction data and detect anomalies. CNN models, in particular, help capture intricate patterns in large datasets, improving the system's ability to identify complex fraud scenarios. The model also uses clustering and classification methods to group users with similar behavioral profiles, making it easier to recognize irregularities. Once a potential fraud is detected, the system triggers instant alerts to users and financial institutions, ensuring timely action to prevent monetary loss. In the future, PaySafe AI aims to expand its capabilities by integrating block chain technology for enhanced transparency and security in transaction verification. It also plans to incorporate predictive analytics to forecast potential fraud trends before they occur.



RAMINENI TEJASWI
22RH1A66F1



Autonomous Agents

Agentic AI, also known as autonomous AI, represents a new phase in artificial intelligence where systems can not only respond to instructions but also plan, make decisions, and act independently. Unlike traditional AI models that generate text or images when prompted, agentic AI uses reasoning, memory, and tools to achieve specific goals with minimal human guidance. This approach allows AI to function more like a human assistant that can execute tasks, adapt to new situations, and correct its own errors.

In 2025, this technology is rapidly expanding into areas like automation, customer support, coding, and industrial control systems. Companies are developing frameworks that let multiple AI agents collaborate and perform complex workflows — for example, analyzing data, scheduling actions, or even browsing the web autonomously. Research is also focused on lighter, more efficient models that reduce the high computational costs of running large agentic systems.

However, safety, ethics, and reliability remain major challenges. Since these agents can act on their own, researchers are designing “oversight” or “guardian” systems to keep their actions aligned with human values and prevent harmful outcomes. Despite these concerns, agentic AI is widely seen as one of the most transformative directions in modern AI — paving the way toward truly intelligent, self-directed digital assistants.

G. VENNELA
24RH1A66A1



AI In Healthcare

AI is everywhere in present. It involves in every sector like Health, Business, Homes and many. So, when we look into health it is more powerful impact .From helping doctors detect disease and creating lifesaving drug early and fast. AI powered tools can analyze medical images, lab reports, etc. Like: RADIOLOGY: It detects tumors, fractures, or pneumonia from X-rays, CT scans, MRI's. PATHOLOGY: ML models identify cancerous cells in second from biopsy samples. CARDIOLOGY: Algorithms monitor heart patterns and predict heart attacks or holes, etc. As we can see real time example Google's Deep Mind developed an AI system that detects over 50 eye diseases as exact as expert Doctors.

Actually to discover or develop a DRUG it takes over 10-15 years and crores of money. But AI speeds up this process by Researching or analyzing millions of chemical compounds and predicting which is best. It identifies potential drug molecular faster and simulate how drugs will interact with human body and also reduces the need of cost and time consuming lab trails. We can see real time example for this during COVID-19, AI helped researchers identify potential antiviral compounds and vaccine targets within weeks instead of months.

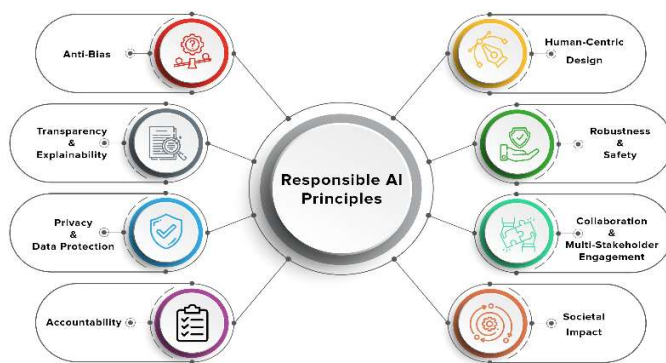
AI also streamlines hospital management: Chatbots handle appointment scheduling and patient Queries Predictive analytics help hospitals manage staff and resources efficiently. Wearable AI devices (like smart watches) continuously track health data detecting issues before they become serious. At last we can say that AI is not replacing doctors — it's empowering them. By combining human expertise with AI's speed and precision, we are entering an era of smarter, faster, and more health care .From diagnosis to drug discovery, AI is truly becoming the doctor's most intelligent assistant's.

J. RUCHITA
24RH1A66C0



Ethical & Responsible AI

Ethical and Responsible AI focuses on developing and using artificial intelligence systems in a way that is fair, transparent, and aligned with human values. It ensures that AI technologies do not cause harm, discriminate, or invade privacy. Responsible AI emphasizes accountability—meaning developers and organizations must take responsibility for how their systems are designed and used. Ethical AI also promotes transparency so that users can understand how decisions are made by algorithms. This approach helps build trust between humans and machines while protecting social, cultural, and legal norms. As AI continues to grow in influence, ensuring that it operates ethically is essential for creating a safe, inclusive, and sustainable digital future.



.Techniques like algorithmic auditing, bias detection, and explainability tools are used to ensure AI systems make decisions fairly and consistently. Moreover, involving diverse teams in AI development helps reduce cultural and societal biases, making By embedding ethics into every stage

of AI design, deployment, and maintenance, organizations can harness AI's potential while minimizing risks to individuals and society.

The implementation of Ethical and Responsible AI has led to clearer AI decision-making, reduced biases, improved compliance with regulations, and increased user trust and adoption. Additionally, incorporating sustainability considerations has made AI systems more environmentally friendly.

D. OJASREE GOWRI
24RH1A6662



ML In Disease Prediction

Machine Learning (ML) is increasingly transforming healthcare by enabling the early detection and prediction of diseases. By analyzing large volumes of patient data, ML algorithms can identify hidden patterns, risk factors, and correlations that may not be evident through traditional statistical methods. Disease prediction using ML helps in early diagnosis, personalized treatment planning, and improved patient outcomes.

ML Concepts in Disease Prediction

- **Supervised Learning:** Used to predict the likelihood of a disease based on labeled patient data such as medical history, lab results, and demographics.
- **Unsupervised Learning:** Helps identify hidden patterns in patient data, such as clustering patients with similar symptoms or disease subtypes.
- **Feature Selection and Engineering:** Identifies and processes the most important patient attributes, improving model accuracy and interpretability.
- **Regression and Classification Models:** Algorithms like Logistic Regression, Decision Trees, and Random Forest classify patients as diseased or healthy and estimate risk levels.

Results and Observations

The results highlight that machine learning is a powerful tool for disease prediction. While complex models offer superior accuracy, simpler models retain value for interpretability and clinical trust. Effective ML implementation requires high-quality data, careful feature selection, and appropriate model choice based on the healthcare application.

CH.VAISHNAVI
24RH1A6655



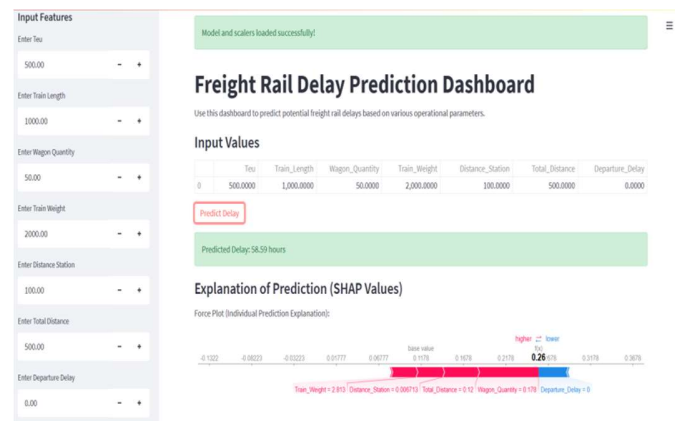
Interpretable Machine Learning Model for Freight Rail Delay Forecasting

Freight rail transportation plays a crucial role in the global logistics network, ensuring the timely movement of goods across long distances. However, train delays can lead to severe operational disruptions, increased costs, and reduced reliability. Predicting these delays in advance has become an important challenge due to the complex interplay of factors such as weather, route congestion, maintenance issues, and scheduling inefficiencies. Traditional models often provide predictions without offering clear insights into why delays occur, making it difficult for operators to trust or act upon the results.

This project focuses on developing an interpretable machine learning model that predicts freight rail delays while maintaining transparency in decision-making. Unlike conventional black-box algorithms, the proposed system incorporates Explainable Artificial Intelligence (XAI) techniques such as SHAP (SHapley Additive Explanations) and LIME (Local Interpretable Model-Agnostic Explanations). These methods allow users to understand how specific input features influence the model's predictions. The dataset used includes information such as train schedules, route characteristics, weather conditions, and historical delays, all of which are preprocessed and used to train the model.

The model achieved strong predictive accuracy while maintaining interpretability.

In conclusion, the proposed interpretable ML model enhances freight rail reliability through accurate and explainable delay forecasting. It enables data-driven planning, reduces uncertainty, and can be extended to broader transport systems for smarter logistics operations.

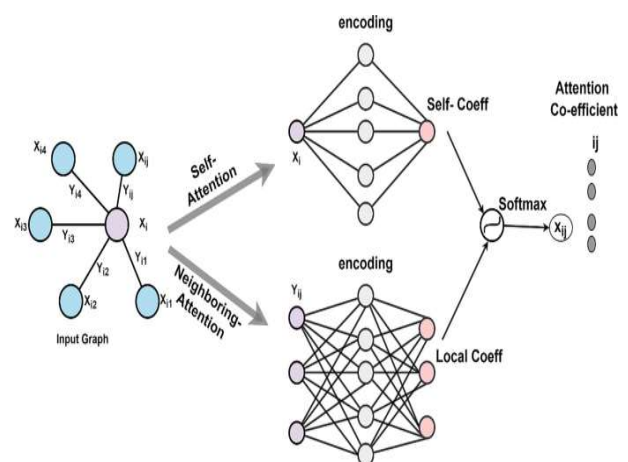


PASUNURI POOJA
22RH1A66E2

Graph Neural Network

Graph Neural Networks (GNNs) are specialized neural networks designed to work directly with graph-structured data, where data points (nodes) are connected by relationships (edges). Unlike traditional neural networks that process fixed-size inputs like images or sequences, GNNs can model complex relationships and interdependencies between entities, making them suitable for tasks like social network analysis, recommendation systems, molecular property prediction, and more. In a graph ($G = (V, E)$), nodes (V) represent entities and edges (E) represent connections or relationships between them.

Each node and edge can carry feature information. GNNs operate by iteratively aggregating information from a node's neighbors to learn meaningful node, edge, or graph-level representations. This is typically done using a message passing framework, where at each layer of the network, a node gathers features from its neighbors, aggregates them, and updates its own representation.



They are also used in computer vision for object relationship modeling and in NLP for knowledge graph completion and semantic analysis. Despite their power, GNNs face challenges such as scalability to massive graphs, over smoothing (where deep networks make node representations indistinguishable), and difficulty in interpretability.



SRI NITHYA REDDY.N
24RH1A66M4

Crop Monitoring In Smart Agriculture

Artificial Intelligence revolutionizing (AI) agriculture is by enabling smart crop monitoring systems that enhance productivity and sustainability. In modern farming, AI integrates with IOT sensors, drones, and machine learning algorithms to analyze soil health, weather patterns, and crop conditions in real time. These systems help farmers make data driven decisions that maximize yield while reducing resource waste

AI-powered drones capture high resolution images of agricultural fields, which are processed using computer vision models such as Convolutional Additionally, AI algorithms predict crop growth stages and irrigation requirements by analyzing sensor data related to soil moisture, humidity, and temperature. Predictive models help optimize watering schedules and fertilizer application, Neural Networks (CNNs). These models can identify pest infestations, nutrient deficiencies, and plant diseases at early stages. Farmers receive instant alerts through mobile ensuring sustainable farming practices.

AI-based systems also conditions, forecast assisting weather farmers in planning their activities and protecting crops from adverse weather events. apps, allowing timely intervention and reducing the need for excessive pesticide use Through AI-driven crop monitoring, agriculture is becoming more efficient, eco-friendly, and profitable. The integration of deep learning, drones, and IoT technologies marks a significant leap toward precision farming and food security for the future.

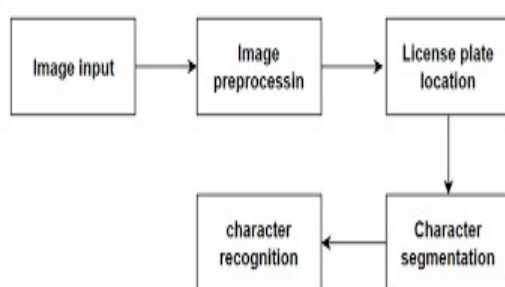
J. RUCHITA
24RH1A66M9



Automatic Number Plate Detection

The Automatic Number Plate Recognition (ANPR) system is a computer vision-based project designed to detect and recognize vehicle license plates in real time. The main goal of this project was to automate vehicle identification for traffic monitoring, toll collection, parking management, and law enforcement. Manual vehicle tracking is time-consuming and prone to human error, so this project aimed to provide a fast, accurate, and efficient automated solution using deep learning.

In many cities, the process of identifying vehicles for traffic rule enforcement or security verification is still manual. This leads to delays and inaccuracies, especially in large traffic zones. Moreover, traditional image processing methods fail under poor lighting or motion blur. The system was built using YOLO (You Only Look Once), a powerful real-time object detection algorithm, to identify vehicles and detect the number plate area in video frames. Once detected, the SORT (Simple Online and Real-time Tracking) algorithm was used to track moving vehicles efficiently. After detecting the plate region, EasyOCR, an Optical Character Recognition tool, was integrated to extract the alphanumeric characters from the plate. The combination of YOLO, SORT, and EasyOCR made the system capable of handling both stationary and moving vehicles with high precision. The entire project was implemented using Python, OpenCV, and deep learning frameworks.



This project showcases how artificial intelligence and computer vision can transform everyday operations like traffic monitoring and security management. The ANPR system can be integrated into smart traffic systems, automated toll collection, parking management, and law enforcement applications. In the future, it can be extended by integrating with cloud databases for

vehicle verification, stolen vehicle alerts, and analytics. Overall, the project demonstrates a successful implementation of deep learning for solving a real-world automation problem efficiently and accurately.

CH.VAISHNAVI
24RH1A66P4



Quantum Machine Learning (QML)

In recent years, Artificial Intelligence (AI) and Quantum Computing have emerged as two of the most transformative technologies shaping the future of computation and decision-making. While AI thrives on pattern recognition, prediction, and automation through vast amounts of data, Quantum Computing promises exponential computational power through the principles of quantum mechanics. When these two fields intersect, they give rise to a new and exciting domain known as Quantum Machine Learning (QML) — a discipline that aims to leverage the capabilities of quantum computers to enhance machine learning algorithms. QML represents the convergence of data-driven intelligence and quantum physics, potentially unlocking unprecedented performance and solving problems beyond the reach of classical computers.

QUANTUM MACHINE LEARNING

Quantum Machine Learning (QML) Algorithms



Quantum Machine Learning combines the mathematical foundations of quantum mechanics with the data-driven methodologies of machine learning. Fields like climate modeling, genomics, logistics optimization, and energy management could be revolutionized by quantum-enhanced systems capable of analyzing multi-dimensional data with unprecedented precision and speed. Traditional computers process information in bits, represented as 0s and 1s.

B. VARSHITHA REDDY
23RH1A6643



The Future of Responsible AI

As Artificial Intelligence becomes a bigger part of our daily lives, the idea of Responsible AI is gaining importance. It focuses on creating systems that are fair, transparent, and respectful of human values. In the coming years, AI will not just be about efficiency and innovation, but about accountability—ensuring that every algorithm makes decisions that are explainable and unbiased. Responsible AI aims to protect people's privacy, reduce digital discrimination, and make technology something society can trust rather than fear.

Looking ahead, Responsible AI will guide how we design, use, and manage intelligent systems. Governments, companies, and researchers will need to work together to set clear ethical standards and build technologies that serve everyone equally. If developed wisely, Responsible AI could become the foundation of a safer digital world—one where machines act with integrity, support human dignity, and help create progress that benefits all, not just a few.

In the end, the future of AI depends on the choices we make today. By teaching machines to act responsibly, we are also reminding ourselves of our duty to use technology with care, honesty, and empathy. True progress will not only be measured by what AI can achieve, but by how fairly it treats every individual it serves. As innovation continues to grow, Responsible AI will stand as a reminder that technology should enhance humanity, not replace it—helping build a future where intelligence and ethics move forward together in harmony.

- ✓ A future built on values is stronger than one built on code.
- ✓ When machines learn to respect, humans learn to trust.
- ✓ And in that balance, technology becomes truly human.

G. REDDY LIKITHA
23RH1A66A3



AI Film Editing and Scriptwriting Tools

Artificial Intelligence (AI) is transforming the film industry by revolutionizing how movies are written, edited, and produced. AI-powered scriptwriting tools use natural language processing and machine learning to generate story ideas, dialogues, and character arcs by analyzing successful scripts and identifying patterns that appeal to audiences. Advanced tools such as Adobe Premiere Pro (with Sensei AI), Runway ML, and Magisto use intelligent algorithms to synchronize video and audio, remove backgrounds, and even enhance visual effects automatically. This not only saves editors countless hours but also ensures precision and consistency in post-production. Beyond editing, AI assists in tasks such as sound enhancement, visual composition, and audience analytics, enabling filmmakers to make data-driven decisions. Importantly, AI is not replacing human creativity but enhancing it—providing filmmakers with powerful tools to express their vision more efficiently.

The integration of AI in film editing and scriptwriting represents a new era of creativity where technology and imagination work hand in hand, reshaping how stories are told and experienced on screen. Artificial Intelligence (AI) is transforming filmmaking by making scriptwriting and editing faster and more creative. Tools like ChatGPT, ScriptAI, and Adobe Premiere Pro's Sensei AI help writers generate stories and editors automate tasks like scene detection, color correction, and sound enhancement. These tools save time, improve quality, and support creativity. Rather than replacing humans, AI works alongside filmmakers, combining technology and imagination to create better movies more efficiently.

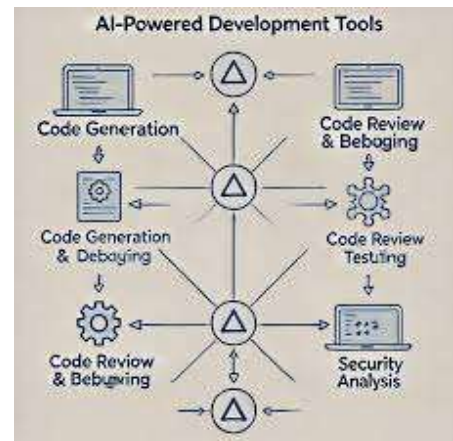


GORILE GEETHA
23RH1A66A4

AI-Powered Code Generation

"AI-Powered Code Generation" explores the transformative role of artificial intelligence in software development, emphasizing how large language models (LLMs) such as GPT and Codex are reshaping the way programmers design, write, and debug code. This project aims to analyze the opportunities and challenges of using AI tools for automated code generation, focusing on productivity, creativity, and software security.

AI-powered code generation systems employ deep learning models trained on vast datasets of source code from multiple programming languages. These models understand syntax, semantics, and context, allowing them to produce functional code snippets, assist in debugging, and even suggest optimal algorithms for specific problems. Such capabilities enable developers to accelerate the software development lifecycle and reduce human error.



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K. ISHWARYA
23RH1A66D8



Autonomous Vehicle Management

Traffic congestion is one of the biggest challenges faced by modern cities, leading to delays, fuel wastage, and increased pollution. Traditional traffic management systems use fixed-time signals that do not adapt to real-time road conditions, often causing unnecessary waiting and longer travel times. With the rise in the number of vehicles, there is a growing need for a smarter and more efficient traffic control system.

Artificial Intelligence (AI) offers innovative solutions to address this problem through automation and data-driven decision-making. By using cameras, sensors, and machine learning models, traffic data can be analyzed in real-time to detect vehicle density, predict congestion, and adjust signal timings automatically. AI algorithms can also forecast traffic flow patterns based on time, weather, and events, helping authorities manage roads more effectively. An Autonomous Traffic Management System powered by AI can transform urban transportation by reducing congestion and improving road safety. It enables smart cities to monitor and control traffic .

In addition, the integration of AI with Internet of Things (IoT) devices and cloud computing can make traffic systems even more powerful. Real-time data collected from cameras, sensors, and GPS can be processed instantly to optimize signal timing across multiple intersections. This not only helps reduce traffic jams but also provides valuable insights for city planners to design better roads and infrastructure. With continuous learning, the AI system can adapt to changing conditions such as accidents, road closures, or weather variations, ensuring smooth and safe transportation for everyone.

M. SANJANA
23RH1A66J8



The AI Scientist: Towards Fully Automated Scientific Discovery

Artificial Intelligence is rapidly evolving from being just a tool to becoming an active participant in the process of discovery. The concept of an AI Scientist represents a ground breaking step in this transformation. It refers to an intelligent system capable of performing the complete scientific cycle — from reading research papers, generating hypotheses, conducting experiments, analysing data, to writing scientific reports — all autonomously. With the progress of Large Language Models (LLMs) like GPT and autonomous AI agents, this vision is now closer than ever to reality. The AI Scientist functions by integrating multiple AI technologies. Language models understand and summarize existing research; Reinforcement Learning algorithms help in planning experiments; The workflow of an AI Scientist begins with scanning vast scientific databases to identify gaps or unanswered questions. However, with great power comes responsibility. The rise of autonomous scientific systems raises critical concerns about trust, accountability, and ethical validation. It is essential to ensure that AI-generated discoveries are transparent, reproducible, and scientifically valid. Human oversight will remain vital to interpret, validate, and guide these AI systems responsibly. In conclusion, the AI Scientist represents a revolutionary shift in the future of research. It moves artificial intelligence beyond automation into the realm of true discovery. By combining reasoning, learning, and creativity, the AI Scientist can become a powerful collaborator to human researchers — accelerating innovation and unlocking discoveries that were once thought impossible.

Duguru Meghana

22RH1A6648



AI Resume Analyzer

"AI Resume Analyzer" is an advanced application that leverages Artificial Intelligence and Natural Language Processing (NLP) to evaluate and enhance resumes efficiently. This project aims to automate the process of resume screening, ensuring faster, unbiased, and more accurate candidate evaluation — an essential innovation in modern recruitment systems.

The system uses NLP models to extract and analyze key information such as skills, education, experience, and achievements from resumes. By utilizing deep learning architectures like Bidirectional LSTM (BiLSTM) and Transformer based models (such as BERT), the analyzer comprehends contextual relationships within the text to identify relevant keywords and professional attributes. The model then compares candidate resumes against specific job descriptions to determine compatibility scores and highlight areas of improvement.

To improve accuracy and interpretability, the system integrates Machine Learning classifiers such as Random Forest and Support Vector Machine (SVM) to rank resumes based on the job fit. Employed to provide recruiters with interactive dashboards displaying candidate analytics, skill gaps, and keyword match percentages. This AI-driven approach streamlines the recruitment process, minimizes human bias, and empowers both candidates and recruiters. It can also assist job seekers in optimizing their resumes for better visibility in Applicant Tracking Systems (ATS). By combining NLP, deep learning, and data analytics, the AI Resume Analyzer transforms the way organizations evaluate talent and make hiring decisions in the digital era.

NEELAM RISHIKA DAMINI
23RH1A66M3



AI Powered Fake Profile

This article highlights the emerging field of AI-powered fake profile and deep fake detection. Social media misuse and online scams are growing rapidly, and automated detection is crucial to protect users. This study demonstrates simplified model comparisons and simulated results.

Fake profiles and deep fakes are AI-generated media or deceptive accounts that can mislead people, spread misinformation, or commit fraud. Detecting them requires advanced machine learning techniques combining computer vision, NLP, and sometimes block chain verification

Three approaches were simulated:

- 1) CNN-based image detector
- 2) Transformer-based multi modal detector
- 3) Fusion model combining profile data and images



The fusion model achieved the highest accuracy in detecting fake profiles, followed closely by the transformer model. CNN performed adequately for image-only detection but was less effective for multi modal cues. Latency is lowest for CNN due to model simplicity.

AI-powered fake profile detection is essential for digital safety. Combining multi modal data (text + image) yields higher detection accuracy. This simplified demo shows that practical deployments can balance accuracy and speed.

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23RH1A66R8

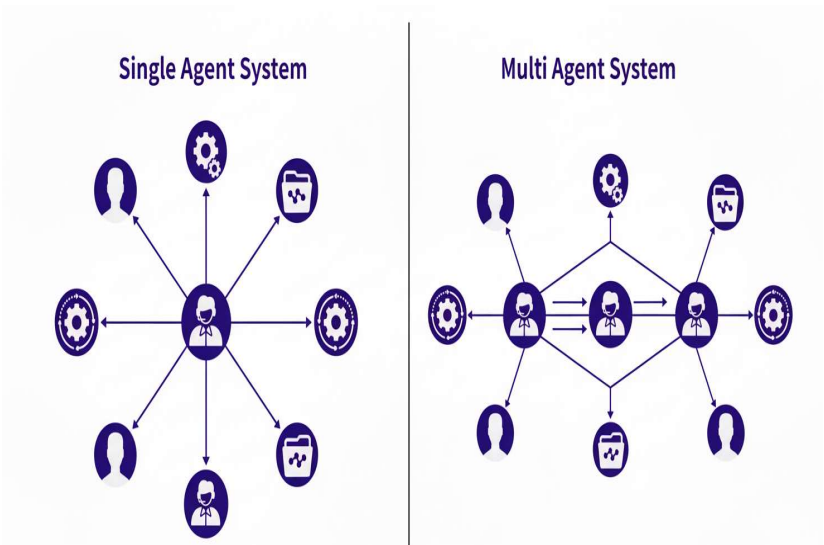


Agents and Multi-Agent Systems

Artificial Intelligence (AI) agents are intelligent entities capable of perceiving their environment, making decisions, and performing actions to achieve specific goals. In recent years, AI agents have evolved to work collaboratively in what are known as Multi-Agent Systems (MAS), enabling complex problem-solving through cooperation, negotiation, and coordination among multiple agents.

An AI agent operates based on the perception-action cycle — it senses the environment, processes information, and acts accordingly. Multi-Agent Systems consist of multiple autonomous agents that interact either cooperatively or competitively to achieve goals. These systems are commonly used in distributed AI, robotics, traffic control, and gaming environments. Communication among agents typically occurs using Agent Communication Languages (ACLs).

AI Agents and Multi-Agent Systems represent a major step toward autonomous, intelligent collaboration. By enabling communication, coordination, and learning among agents, MAS technology enhances decision-making and problem-solving in real-world applications such as robotics, smart cities, and defense systems



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23RH1A66T5



Calm Connect – Your Digital Mental Wellness Companion.

The Calm Connect project is an AI-based mental health companion designed to promote emotional well-being through mindfulness, journaling, and self-reflection. In a world where stress and anxiety are increasingly common, this system provides users with a safe, interactive, and empathetic digital environment to manage their mental health. Calm Connect aims to empower individuals to understand their emotions, adopt healthy coping strategies, and build sustainable self-care habits.

The primary objective of this project is to offer personalized emotional support through intelligent assessments and interactive tools. Users begin with a guided questionnaire that helps the system identify their emotional state—whether it's anxiety, depression, or stress. Based on the insights gathered, Calm Connect provides tailored recommendations, including guided meditations, breathing exercises, affirmations, and practical self-care tips.

Calm Connect features an elegant user-friendly interface developed using React, ensuring smooth navigation and an aesthetically calm design. Key functionalities include a Mood Tracker for monitoring daily emotions, a Digital Journal for personal reflections, and a Chatbot offering motivational support and mindfulness reminders. The app also integrates a Progress Dashboard to visualize emotional growth and track wellness consistency over time.

The project leverages cloud-based technologies for secure data storage, ensuring privacy and accessibility. The color palette and UI design were carefully curated to evoke a sense of tranquility and relaxation, helping users feel at ease while interacting with the platform.

Calm Connect thus redefines how technology can be used to support mental wellness. By combining emotional intelligence, accessibility, and compassionate design, it serves as a digital sanctuary for users seeking peace of mind in their daily lives.

22RH1A6606
NEHA ADEPU



Multi-Level Analysis of Pain Recognition Using Physiological Signals

Pain recognition is a vital component of healthcare, as accurate detection can significantly improve patient diagnosis, treatment, and comfort. Traditional methods of assessing pain often rely on subjective self-reports or visual observation, which can be unreliable, especially for patients unable to communicate effectively. Recent advancements in artificial intelligence (AI) and machine learning (ML) have made it possible to objectively analyze physiological signals for automatic pain detection.

Physiological signals such as Electromyography (EMG), Electrocardiography (ECG), and Electro dermal Activity (EDA) contain valuable indicators of an individual's pain state. Earlier studies mainly depended on manually extracted features from these signals using traditional machine learning models like Support Vector Machine (SVM), Random Forest (RF), and Linear Regression. While effective to some extent, these approaches often required extensive domain expertise and offered limited generalization capabilities. The system leverages multi-level context information, which enhances the discriminative power between pain and non-pain states.

The proposed framework employs advanced neural network architectures such as Convolutional Neural Networks (CNN) combined with Bi-directional Long Short-Term Memory (Bi-LSTM) to capture both spatial and temporal dependencies in the physiological data. The model is trained and validated on benchmark datasets, including Part A of the Bio-Vid Heat Pain Database and the Emo Pain 2021 dataset. Experimental results demonstrate that the multi-level context approach achieves superior performance compared to traditional uni-level algorithms, obtaining an average accuracy of up to 87.8% in cross-subject evaluations. In conclusion, the use of multi-level deep learning algorithms for pain recognition based on physiological signals provides a robust, secure, and high-performing framework.

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22RH1A66B0



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