Suresh Angadi Education Foundation's

ANGADI INSTITUTE OF TECHNOLOGY AND MANAGEMENT

Savagaon Road, Belagavi – 590 009.

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AI@AITM

Exploring the Future of AI and Data

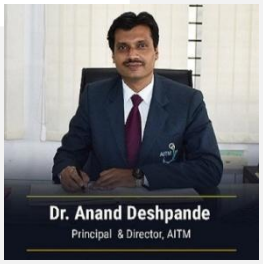
Technical E-Magazine

Department of Artificial Intelligence & Data Science

Technical Magazine | Issue 02 | Dec 2025

Message from: Principal & Director

Dr. Anand Deshpande



An Institute is assessed on the basis of the Academic ambiance and outcome of the system in terms of performance and achievements of the students and staff in teaching-learning, research, innovation, Placements, and results. AITM has been known for its Academic credentials coupled with holistic growth in all directions. The new generation of competent minds must imbibe knowledge and practically they should comprehend the art of balancing brilliant technical, managerial communication, and interpersonal skills, nest. The Institute has achieved a series of milestones with the help of brilliant students, dedicated staff, and encouraging Management. We promise a wonderful experience of rich Academic and Excellent facilities coupled with professional practices and blended with an affectionate concern for our Students.

Message from: HOD

Prof. Sagar Birje

Welcome to the Department of Artificial Intelligence and Data Science. AI and DS is the skill of the century and has had a massive impact on the society. AI and DS have seen enormous progress and significant breakthrough innovations in practically every field over the last decade. Keeping this in mind, the AI and DS Department was established in the year 2020 with the aim of providing leadership in the field of AI & DS Engineering with an intake of 60 students. The Department is focused on delivering innovative and high-quality technical education in the field of Artificial Intelligence and Data Science.

❖ Institute Vision and Mission

Vision:

To become a premier institute committed to academic excellence and global competence for the holistic development of students.

Mission:

M1: Develop competent human resources, adopt outcome-based education (OBE) and Implement cognitive assessment of students.

M2: Inculcate the traits of global competencies (such as domain expertise, Accountability, ethics, problem solving ability, communication skills, leadership Qualities and life-long learning) amongst the students.

M3: Nurture and train our students to have domain knowledge, develop the qualities of global professionals and to have social consciousness for holistic development.

❖ Department Vision and Mission

Vision:

To deliver a quality and responsive education in the field of artificial intelligence and data science emphasizing professional skills to face global challenges in the evolving IT paradigm.

Mission:

M1: Leverage multiple pedagogical approaches to impart knowledge on the current and emerging AI technologies.

M2: Develop an inclusive and holistic ambiance that bolsters problem

Solving, cognitive abilities and critical thinking.

M3: Enable students to develop trust worthiness, team spirit, understanding law-of-the-land, and social behaviour to be a global stake holder

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Editorial – From the Editor's Desk

We are thrilled to present the inaugural issue of *AI@AITM*, the official technical magazine of the Department of Artificial Intelligence and Data Science at Angadi Institute of Technology and Management (AITM). This quarterly magazine serves as a platform to showcase the innovations, research, achievements, and creative ideas of students, faculty, and collaborators in the evolving world of AI and Data Science.

— **Prof. Chetan Shankar Patil,** *Assistant Professor – AI & DS, AITM*

🔍 Department Highlights (July- Dec 2025)

1. Students of 8th semester: Miss Deepa Benni secured 10th Rank to the Visvesvaraya Technological University for 2021 batch.
2. Prof. Sagar Birje, has a copyright on “PROCESS FOR THE DESIGN OF CROP RECOMMENDATION PLATFORM USING MACHINE LEARNING”.
3. Dr.A.A.Quazi has published a paper “Leveraging BERT, DistilBERT and TinyBERT for Rumor Detection” in IEEE Access Volume 13, Year 2025.
4. KSCST Project : Five final year projects were selected under 48th series KSCST Student Project Program(SPP): 2024-25.
5. KSCST Project : Three projects have been selected for the State Level Poster Presentation and Exhibition to be held at Jawarharlal Nehru New College of Engineering, Shivamogga on 1st and 2nd August 2025.
6. Students of 8th semester: Fintech startup DhanGuru, founded by Sayeed Amaan, Vaishnavi R Babaleshwar, Shreebodh Inamdar, Pratik Chitti, Rohit Jadhav, Yash Mirashi, and Shubham Hulamani has been selected among the Top 20 teams (Top 100 students) out of more than 8000 participating teams in the

prestigious “100 Fintech Entrepreneurs in 100 Days” challenge organized by the Reserve Bank Innovation Hub (RBIH).

7. 26 papers have been published in International Journal by Staff and Students.

HUMAN–AI COLLABORATION

By Miss Shraddha A Sutar

Introduction

Human–AI collaboration refers to the synergistic partnership between human intelligence and artificial intelligence systems to enhance performance, creativity, and decision-making. Rather than viewing AI as a replacement for human labor, modern perspectives emphasize its role as an assistive technology that complements human capabilities. This collaboration is becoming increasingly important as AI systems grow more advanced and integrated into everyday life, shaping the future of work, innovation, and society.

Understanding Human–AI Collaboration

Human–AI collaboration is based on combining the unique strengths of humans and machines. Humans contribute critical thinking, emotional intelligence, ethical judgment, and contextual awareness, while AI excels at processing large datasets, recognizing patterns, and performing tasks with speed and accuracy. Effective collaboration occurs when humans remain in control of decision-making while AI provides insights, recommendations, and automation support.

Future Outlook

The future of human–AI collaboration will focus on deeper integration, improved trust, and alignment with human values. AI systems are expected to become more explainable, user-friendly, and context-aware. As collaboration evolves, new roles and skills will emerge, emphasizing adaptability, ethical reasoning, and interdisciplinary knowledge. Successful collaboration will depend on continuous learning and a balanced approach that prioritizes human agency.

Key Milestones in Human–AI Collaboration

Period / Year	Milestone	Description
1950s	Early AI Concepts	Introduction of AI ideas such as the Turing Test, focusing on machine intelligence and human interaction.
1970s–1980s	Expert Systems	Rule-based systems developed to assist human decision-making in fields like medicine and engineering.
1990s	Machine Learning Emergence	AI systems began learning from data, improving collaboration through adaptive decision support.
2010s	Big Data & Deep Learning	Advances in computing power enabled AI to analyze massive datasets and recognize complex patterns.
Late 2010s	Natural Language Processing	AI systems became capable of understanding and generating human language, improving interaction.
2020s	Generative AI	AI tools began collaborating creatively with humans in writing, design, programming, and research.

Applications of Human–AI Collaboration

- **Healthcare:**
  AI assists in diagnostics, medical imaging, disease prediction, and treatment planning while doctors make final decisions.
- **Education:**
  Intelligent tutoring systems personalize learning and help teachers track student progress.
- **Business and Finance:**
  AI supports data analysis, risk assessment, fraud detection, and automation of routine tasks.
- **Manufacturing:**
  Collaborative robots (cobots) work alongside humans to improve efficiency, precision, and workplace safety.

Conclusion

Human–AI collaboration represents a transformative shift in how humans interact with technology. By leveraging the complementary strengths of humans and AI, societies can achieve greater efficiency, creativity, and problem-solving capacity. While challenges remain, thoughtful design, ethical practices, and human-centered approaches can ensure that this collaboration leads to sustainable progress and a positive future for all.

A DAY WITHOUT AI

By Miss Joshna C. Patil

Introduction

Artificial Intelligence has become an invisible yet essential part of modern life. From smartphones and smart homes to workplaces and entertainment, AI supports countless daily activities. Imagining a day without AI helps us understand how deeply technology is embedded in our routines and how dependent we have become on intelligent systems for convenience, efficiency, and decision-making.

Understanding a Day Without AI

A day without AI would mean the absence of automated decision-making, personalized services, and intelligent assistance. Tasks that are usually handled by AI—such as navigation, online recommendations, voice assistants, spam filtering, and instant information retrieval—would either function poorly or not at all. Humans would rely entirely on manual processes, traditional tools, and personal judgment, making everyday activities slower and more effort-intensive.

Future Outlook

The idea of a day without AI highlights how deeply artificial intelligence has become integrated into everyday life. In the future, AI is expected to become even more seamless, intelligent, and supportive, making its absence more noticeable. Rather than eliminating human involvement, future AI systems will focus on enhancing human capabilities, improving efficiency, and reducing routine burdens.

Key Milestones of a Day Without AI

Time / Stage of the Day	Milestone	Description
Morning	Starting the Day	No AI-powered alarms, smart assistants, or instant weather updates; reliance on traditional clocks and manual planning.
Commute	Travel and Navigation	Absence of GPS navigation, traffic prediction, and ride-hailing apps leads to slower and less efficient travel.
Work / School Hours	Productivity Challenges	No AI tools for automation, writing assistance, data analysis, or online learning support, increasing manual workload.
Information Access	Searching for Information	Search engines lack smart ranking and personalization, making information harder and slower to find.

Applications of AI in Daily Life

- **Morning and Personal Life:**
  - AI-powered alarms, smart assistants, and home automation (lights, thermostats, coffee machines).
- **Travel and Navigation:**
  - GPS navigation, traffic prediction, ride-sharing apps, and route optimization.
- **Work and Education:**
  - Automated writing tools, data analysis software, scheduling assistants, virtual classrooms, and learning platforms.
- **Communication:**
  - Spam filtering in emails, Chabot's, automated translations, and personalized notifications.

Conclusion

A day without AI highlights how integral artificial intelligence has become in modern life. From waking up in the morning to commuting, working, learning, communicating, and even enjoying leisure activities, AI quietly supports countless tasks that make daily routines efficient and convenient. Experiencing a day without it would be challenging, slower, and more labour-intensive, but it also emphasizes the importance of human skills, creativity, and problem-solving.

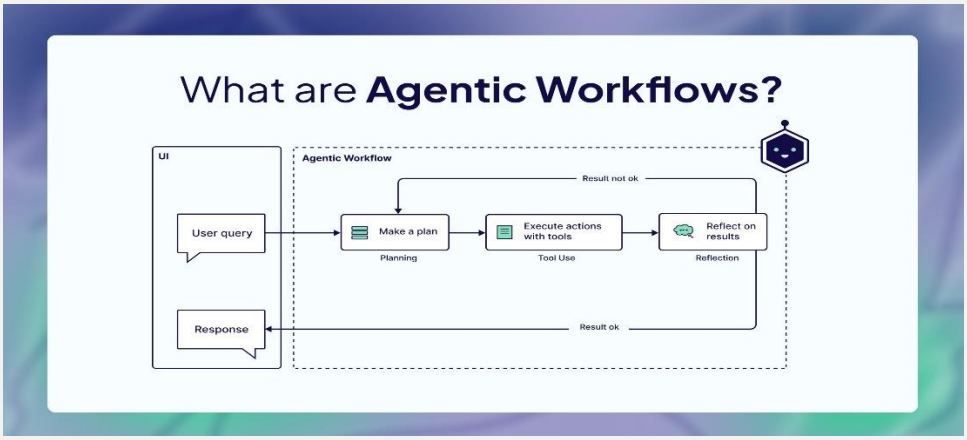
The Rise of Agentic Workflows

By Madhushree J Danaraddi

Introduction

In the early days of Generative AI, the value was found in the "one-shot" prompt—you asked a question, and the model gave its best guess. However, as we move through 2026, the industry has hit a ceiling with simple generation. The new frontier is the Agentic Workflow.

Unlike traditional AI, which acts as a passive encyclopaedia, Agentic Workflows are iterative and goal-oriented. Instead of a single linear path from prompt to answer, these systems operate in "reasoning loops." They can plan multi-step tasks, use external software tools, critique their own drafts, and self-correct when they hit an error. In essence, we are shifting from AI that writes to AI that works.



Applications in 2026

Agentic workflows are currently transforming industries by automating processes that previously required constant human oversight:

* Autonomous Software Engineering: Beyond simple code completion, agentic workflows can now take a bug report, navigate a massive codebase, write a fix, run unit tests, and submit a pull request for human review.

* Hyper-Personalized Supply Chains: AI agents act as "Digital Procurement Officers." They monitor global logistics data, detect a delay in a specific port, and autonomously contact alternative suppliers to negotiate prices and reroute shipments.

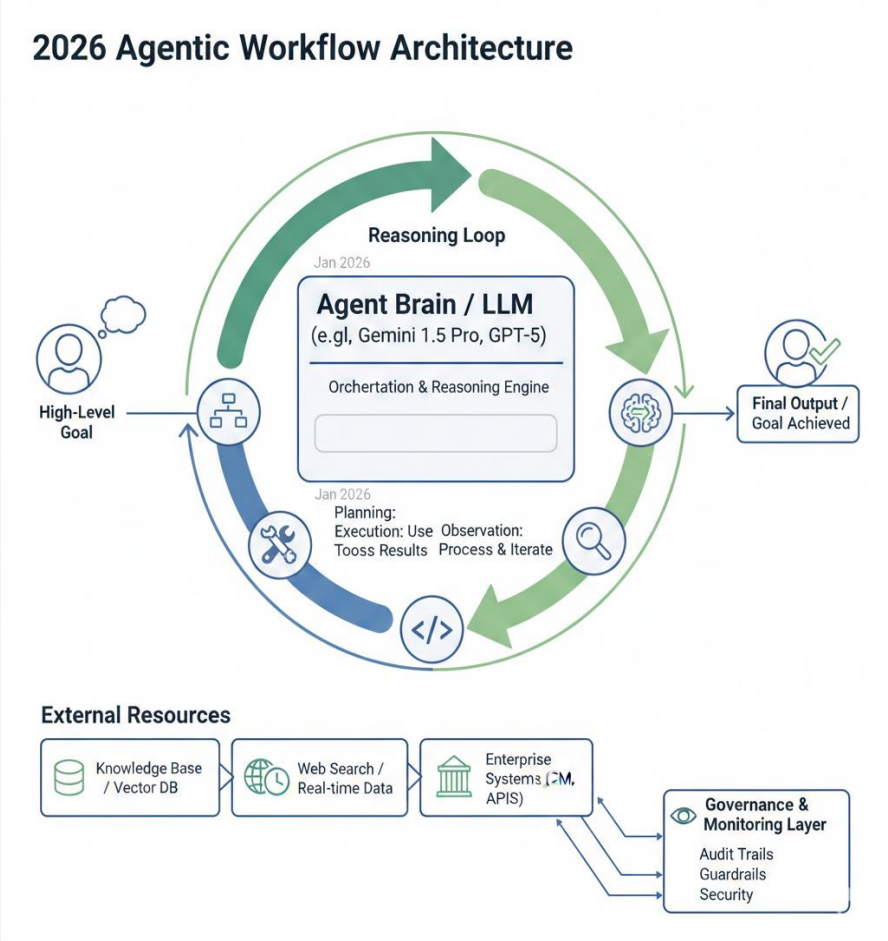
* Legal & Compliance Auditing: Instead of a human reading 500 contracts, an agentic swarm can analyse the documents, cross-reference them with new 2026 regulations, flag risks, and draft the necessary amendments.

* Scientific Research: In drug discovery, agents are being used to simulate chemical reactions, analyse the results, and autonomously adjust the parameters for the next simulation "loop," accelerating R&D by years.

Conclusion

The rise of agentic workflows marks the end of the "Chatbot Era." We are entering a period where the primary value of AI is not its ability to sound human, but its ability to exercise agency.

For data scientists and developers, the challenge has shifted from optimizing prompts to orchestrating workflows. As these systems become more autonomous, the human role is evolving from a "doer" to a "director"—setting the objectives, defining the guardrails, and auditing the results. The future of productivity will not be defined by how well we can talk to machines, but by how effectively we can manage these silicon-based teams.



Data privacy in the age of free apps

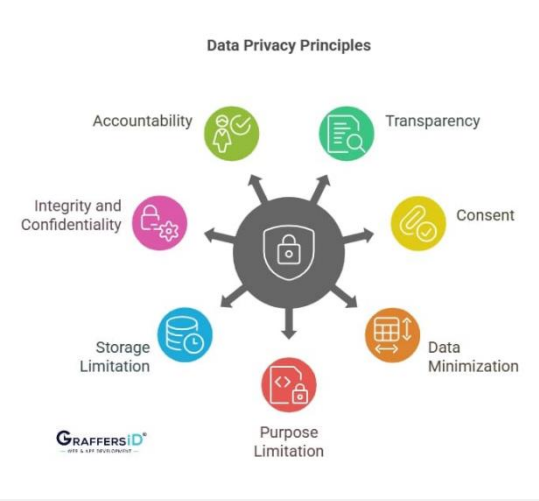
By Shilpa Malai

Introduction

In the modern digital era, free mobile applications have become an essential part of everyday life. From communication and entertainment to education and finance, these apps provide convenience at no direct monetary cost. However, behind this free access lies a hidden exchange—users often pay with their personal data. As the use of free apps continues to grow, understanding data privacy has become increasingly important, especially for college students who are among the most active digital users.

Understanding Data Privacy

Data privacy refers to the protection of personal information collected, stored, and shared by digital platforms. Free apps collect user data such as names, locations, browsing behaviour, preferences, and device information. This data is used to personalize services, show targeted advertisements, or generate revenue by sharing insights with third-party organizations. While users may consent to data collection, it is often done without fully understanding how much data is being shared and how it is used.



Key Milestones in Data Privacy

The concern for data privacy has evolved over time alongside technological advancements. Some important milestones include**:**

The rise of social media platforms, which highlighted large-scale personal data sharing.

Major data breach incidents that exposed millions of user records.

Introduction of data protection laws such as GDPR (General Data Protection Regulation) and similar national policies.

Increased awareness among users about digital rights and online privacy.

These milestones have shaped how data privacy is viewed and regulated in the digital ecosystem.

The concern for data privacy has evolved over time alongside technological advancements. Some important milestones include**:**

The rise of social media platforms, which highlighted large-scale personal data sharing

Major data breach incidents that exposed millions of user records

Data collection through free apps plays a significant role across various industries.

Applications Across Several Industries

Data collection through free apps plays a significant role across various industries:

- Education: Learning apps track student progress and preferences to personalize content
- Healthcare: Fitness and health apps collect sensitive data to monitor physical activity and well-being
- Finance: Payment and banking apps use data to enhance security and detect fraud
- Marketing: Businesses rely on user data to understand consumer behaviour and improve advertising strategies
- Entertainment: Streaming and gaming apps analyse usage patterns to recommend content

While these applications improve user experience, they also increase the responsibility to protect personal data.

Challenges in Data Privacy

Despite growing awareness, several challenges remain:

Lack of transparency in data usage policies

Users ignoring terms and conditions due to complexity

Increased risk of data breaches and cyber attacks

Difficulty in controlling data once it is shared

Rapid technological growth outpacing legal regulations

These challenges make it difficult to ensure complete data privacy in the digital world.

Future Outcomes and Outlook

The future of data privacy is likely to focus on stronger regulations, improved security technologies, and greater user control. Artificial intelligence may be used to detect privacy threats, while apps may adopt privacy-by-design approaches. Users are also expected to become more privacy-conscious, demanding transparency and ethical data practices. As technology evolves, balancing innovation with privacy protection will be a key focus.

Conclusion

In the age of free apps, data has become a valuable digital asset. While these applications offer convenience and innovation, they also raise serious concerns about personal privacy. Understanding how data is collected and used empowers users to make informed decisions. For college students and future professionals, awareness of data privacy is essential to safely navigate the digital world. Ultimately, protecting personal data is not just a technical issue but a shared responsibility between users, developers, and policymakers.

Student Innovation Corner:

AITM AI & DS Students Showcase Projects at 48th State-Level Poster Presentation and Project Exhibition at JNNCE, Shivamogga

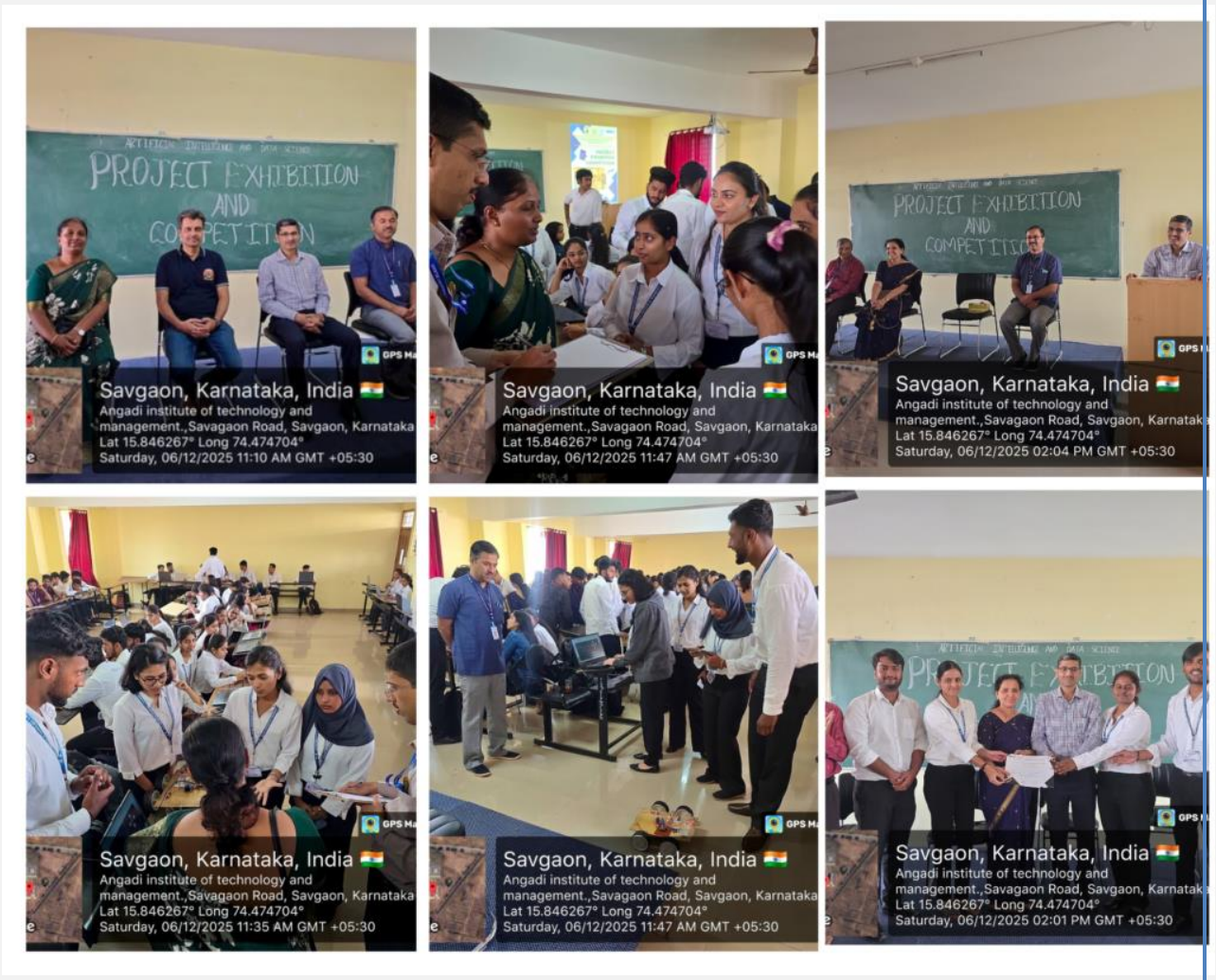
Students from the Artificial Intelligence and Data Science department of AITM participated in the 48th State-Level Poster Presentation and Project Exhibition held on 1st and 2nd August 2025 at JNNCE, Shivamogga. Organized by KSCST, the event provided a platform to showcase innovative student projects, reflecting AITM's focus on practical learning and technological excellence.

AITM AI & DS Department Celebrates Student Innovation Through Project Exhibition

The Department of Artificial Intelligence and Data Science (AI & DS), Angadi Institute of Technology and Management (AITM), Belagavi, organized a Project Exhibition on December 6, 2025, showcasing students' innovative ideas and technical skills in AI and Data Science.

The projects were evaluated by Dr. R. S. Patil, Professor, KLS Gogte Institute of Technology, and Prof. Sheetal Patil, Assistant Professor, SGBIT, Belagavi, who appreciated the creativity and real-world relevance of the work and provided valuable feedback.

The event was inaugurated by Dr. Anand B. Deshpande, Principal & Director, AITM, who encouraged students to focus on innovation and research-driven applications. Prof. Sagar Birje, Head of the AI & DS Department, along with faculty members, supported the event. Outstanding projects were awarded trophies and certificates, inspiring students toward excellence in innovation and research.



Faculty / Student Research

1.

International Journal of Research Publication and Reviews, Vol 4, no 12, pp 4479-4482 December 2023

WWW.IJRPR.COM

International Journal of Research Publication and Reviews

Journal homepage: www.ijrpr.com ISSN 2582-7421

Enhancement of Railway Safety Measures through Deep Learning Algorithm to Identify Railway Wheel Defects

Prof. Chetan Patil [a], Tejas Nandani [b], Hate Nagaraj Gouda [c], Shashank D. Vighneshi [d], Meghana Chittapur [e]

[a,b,c,d,e] *Department of Artificial Intelligence and Data Science, Angadi Institute of Technology and Management, Belagavi-590009, India*

ABSTRACT

This study explores the application of deep learning models for identify railway wheel defects using neural network architecture such as YOLO, InceptionV3, DenseNet, and MobileNet for identifying and classifying defects in railway wheels. The research involves training each model on a diverse dataset containing images of wheels with common defects. This defect identification system holds promise for proactive maintenance, accident reduction, and overall railway safety improvement. Integration into existing infrastructure offers potential advancements in defect detection for a safer and more efficient rail network.

Keywords: YOLO, InsepectionV3, DenseNet and MobileNet.

2.

International Journal of Research Publication and Reviews, Vol (6), Issue (6), June (2025) Page – 4217-4220

WWW.IJRPR.COM

International Journal of Research Publication and Reviews

Journal homepage: www.ijrpr.com ISSN 2582-7421

HealNova AI-New Healing Possibilities Through AI

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ABSTRACT:

This model integrates drug and patient data from many databases to provide a comprehensive medication recommendation system. Using patient comments, pharmacological specifications, and interaction data, it clusters people and medications to produce recommendations. It is unique in that it chooses the best medications based on the medical history and traits of each patient. The technology uses natural language processing in conjunction with artificial intelligence models such as graph neural networks and sentiment analysis to improve prediction accuracy. Two matrix factorization models are developed according to pharmacological characteristics and patient situations. By computing the cosine similarity between a patient's symptoms and the effects of a medication, the system makes recommendations for alternate therapies. Lastly, drug interaction analysis improves safety and fosters improved patient outcomes and healthcare delivery by weeding out drugs with mild to severe side effects.

Keywords: Alternative Medicine, Recommendation System, Natural Language Processing, Neural Networks, Drug Interaction Analysis.

3.

e-ISSN: 2582-5208
International Research Journal of Modernization in Engineering Technology and Science
(Peer-Reviewed, Open Access, Fully Refereed International Journal)
Volume:07/Issue:05/May-2025 Impact Factor- 8.187 www.irjmets.com

KRISHI-GYAN: AI POWERED CHATBOT FOR FARMERS

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DOI: https://www.doi.org/10.56726/IRJMETS78150

ABSTRACT

This project aims to support farmers in plant species identification and basic crop care through an AI-powered chatbot currently in its initial development phase. Farmers will be able to either upload images of their crops or provide simple text prompts for identification, which will be handled by a deep learning model trained on a diverse dataset. The chatbot will then provide common pesticide information and essential cultivation precautions by referencing a curated knowledge base.As the project is starting from scratch, this paper outlines the methodology and planned implementation, with future plans to incorporate additional features such as disease detection and personalized advice to further enhance agricultural sustainability.

Keywords: AI Chatbot , Plant Identification , Image-Based , Pesticide Advice , Crop Care

4.

e-ISSN: 2582-5208
International Research Journal of Modernization in Engineering Technology and Science
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Volume:07/Issue:05/May-2025 Impact Factor- 8.187 www.irjmets.com

MALWARE DETECTION, CLEANING AND PDF EXTRACTION

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ABSTRACT

PDF files are widely used for document sharing but have increasingly become a common vector for malware distribution. This project presents an integrated approach for malware detection, cleaning, and content extraction from PDF documents. The system is designed to first analyze PDF files for malicious indicators using a combination of static analysis and signature-based detection techniques. Suspicious elements such as embedded scripts, abnormal object structures, and encrypted streams are identified. Once malware is detected, a cleaning module attempts to sanitize the file by removing or neutralizing malicious content without affecting the integrity of legitimate data. After the file is deemed safe, the system performs structured extraction of text, images, and metadata for further use or analysis. This comprehensive pipeline enhances document security, ensuring safe access to critical information while minimizing the risk posed by embedded threats. The proposed solution is suitable for integration into email gateways, document management systems, and enterprise-level security frameworks.

Keywords: Malware Detection , PDF Malware , PDF Cleaning , Secure Document Processing, Secure File Handling.

5.

e-ISSN: 2582-5208
International Research Journal of Modernization in Engineering Technology and Science
(Peer-Reviewed, Open Access, Fully Refereed International Journal)
Volume:07/Issue:05/May-2025 Impact Factor- 8.187 www.irjmets.com

AI-POWERED TRAFFIC SIGN RECOGNITION WITH VOICE ALERTS

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*5Professor, Department Of Artificial Intelligence & Data Science, Angadi Institute Of Technology & Management, Belagavi, Karnataka, India.

DOI: https://www.doi.org/10.56726/IRJMETS78267

ABSTRACT

This project demonstrates a real-time traffic sign detection system enhanced with multilingual voice alerts and speed violation detection and implemented using convolutional neural networks (CNNs). The system utilizes a live camera feed to capture images, processes them through a trained sign recognition CNN model, and delivers feedback in English, Hindi, or Kannada almost instantaneously using text-to-speech technology. The system's design also permits the manual input of the driver's speed so that it can be checked against the speed limit signs detected. If the system determines there is a violation, it issues an immediate voice alert to the driver. The system comes with a basic GUI that permits effortless participation, language selection, and image supervision. Because of its accessibility and safety features, the system aids in accident prevention in many regions with several languages. Designed in such a modular way that it can be enhanced for future use in assisting drivers or in fully autonomous vehicles, the system employs a flexible software architecture.

6.

e-ISSN: 2582-5208
International Research Journal of Modernization in Engineering Technology and Science
(Peer-Reviewed, Open Access, Fully Refereed International Journal)
Volume:07/Issue:05/May-2025 Impact Factor- 8.187 www.irjmets.com

AI-POWERED CHEATING DETECTION IN OFFLINE EXAMINATIONS USING YOLOV8 AND POSE ESTIMATION

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DOI: https://www.doi.org/10.56726/IRJMETS78325

ABSTRACT

Cheating during offline examinations undermines academic integrity and fairness. Traditional supervision methods are limited by human attention and subjectivity. This paper proposes an AI-driven cheating detection system leveraging the YOLOv8 object detection model combined with pose detection and an attention mechanism to monitor video feeds in real time. Our method detects suspicious behaviours such as unauthorised note-passing, gaze diversion, and suspicious body movements. Preliminary experiments aim to achieve high detection accuracy while minimising false positives. The proposed system is expected to assist invigilators by providing timely alerts and improving examination security. Early results show promise for scalable and efficient cheating detection in offline examination environments.

7.

e-ISSN: 2582-5208
International Research Journal of Modernization in Engineering Technology and Science
(Peer-Reviewed, Open Access, Fully Refereed International Journal)
Volume:07/Issue:06/June-2025 Impact Factor- 8.187 www.irjmets.com

SEARCH AND IDENTIFICATION OF HUMAN VICTIMS USING YOLOV9

Ankita Potdar*1, Naina Kulgod*2, Harshal Dhavaleshwar*3, Shubham Bolgundi*4, Prof. Dattatreya Choudari*5

*1,2,3,4,5Visvesvaraya Technological University, Artificial Intelligence And Data Science, Angadi Institute Of Technology And Management, Belagavi, Karnataka, India.

ABSTRACT

Natural disasters often lead to the loss of human lives and pose significant challenges for timely victim identification and rescue operations. This study presents an advanced framework for the search and identification of human victims in disaster-struck areas using the state-of-the-art deep learning model YOLOv9. The system processes drone-captured images of affected regions to detect bodies and living persons with high accuracy and efficiency. By leveraging Python programming, the identified data is integrated into GIS maps, and real-time alerts are generated for rescue teams and emergency sensors. The results are visualized through interactive dashboards to assist decision-makers in managing rescue operations effectively. The integration of deep learning, geospatial visualization, and alert mechanisms in this approach enhances the responsiveness and precision of disaster victim identification, contributing significantly to humanitarian aid efforts.

Keywords: Yolov9, Human Victim Detection, Image Processing, Python Programming.

8.

International Journal of Research Publication and Reviews, Vol 4, no 12, pp 4483-4485 December 2023

WWW.IJRPR.COM

International Journal of Research Publication and Reviews

Journal homepage: www.ijrpr.com ISSN 2582-7421

Applications of Hyperspectral Imagery for Identifying the Change Detection Parameter

Prof. Datta Choudhari [a], Adarsh kurundwade [b], Omkar Hiremath [c], Lakshita[d], Nidhi Oulkar [e]

[a,b,c,d,e] Department of Artificial Intelligence and Data Science, Angadi Institute of Technology and Management, Belagavi-590009, India

ABSTRACT

This project explores hyperspectral imagery for change detection using semantic segmentation, leveraging advanced neural network architectures including U-Net, ResNet, and CNN. The U-Net excels in spatial information capture, while ResNet enhances feature extraction and model depth. Our methodology involves preprocessing, training on labelled datasets, and fine-tuning parameters. Semantic segmentation enables precise identification of changed regions. Evaluation of diverse datasets demonstrates superior performance compared to traditional methods, emphasizing potential applications in environmental monitoring, urban planning, and disaster response. This project contributes to advancing change detection in hyperspectral imagery, showcasing the efficacy of U-Net, ResNet, and CNN architectures for accurate semantic segmentation.

Keywords: U-NET, ResNet, CNN, Semantic segmentation, Change detection.

9.

e-ISSN: 2582-5208
International Research Journal of Modernization in Engineering Technology and Science
(Peer-Reviewed, Open Access, Fully Refereed International Journal)
Volume:07/Issue:05/May-2025 Impact Factor- 8.187 www.irjmets.com

SURVEY ON AI-DRIVEN CHATBOTS FOR STREAMLINED FORM FILLING AND BENEFIT RECOMMENDATIONS FOR SENIOR CITIZENS

Prof. Sagar Birje*1, Pavan Hegade*2, Ranjitha GR*3, Shrejal Patil*4, Swati Bajantri*5

*1,2,3,4,5Visvesvaraya Technological University, Artificial Intelligence and Data Science, Angadi Institute of Technology and Management, Belagavi, Karnataka, India.

DOI: https://www.doi.org/10.56726/IRJMETS77894

ABSTRACT

Older adults tend to struggle with accessing public services because of digital illiteracy, linguistic differences, and bureaucratic form-based processes. This survey examines AI-powered chatbot systems aimed at streamlining the filling of forms and suggesting appropriate benefits for senior citizens. The study classifies studies in voice-enabled bots, smart form automation, and personalized scheme suggestion technologies. Interestingly, tools such as the "Dhvani" voicebot employ natural language processing, knowledge graphs, and Rasa framework to communicate in local languages and autofill forms with 97% accuracy in intent classification [1]. Other tools employ OCR and machine learning to fill out printed forms automatically, enhancing data entry effectiveness [6], while usability studies of smart assistants such as Echo Show indicate high adoption rates among older adults [7]. This article contrasts design approaches, technologies like SVM, RNN, and KLM modeling, and emphasizes trends for inclusive chatbot design [4][8]. The survey concludes with existing gaps such as limited multilingualism, absence of emotional interaction, and lack of privacy-oriented personalization. It concludes that AI chatbots offer a scalable and accessible solution to enable older citizens independently to access digital welfare services, and suggests future research in multimodal interfaces and federated learning frameworks.

10.

e-ISSN: 2582-5208
International Research Journal of Modernization in Engineering Technology and Science
(Peer-Reviewed, Open Access, Fully Refereed International Journal)
Volume:07/Issue:05/May-2025 Impact Factor- 8.187 www.irjmets.com

SURVEY ON AI-DRIVEN CHATBOTS FOR STREAMLINED FORM FILLING AND BENEFIT RECOMMENDATIONS FOR SENIOR CITIZENS

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DOI: https://www.doi.org/10.56726/IRJMETS77894

ABSTRACT

Older adults tend to struggle with accessing public services because of digital illiteracy, linguistic differences, and bureaucratic form-based processes. This survey examines AI-powered chatbot systems aimed at streamlining the filling of forms and suggesting appropriate benefits for senior citizens. The study classifies studies in voice-enabled bots, smart form automation, and personalized scheme suggestion technologies. Interestingly, tools such as the "Dhvani" voicebot employ natural language processing, knowledge graphs, and Rasa framework to communicate in local languages and autofill forms with 97% accuracy in intent classification [1]. Other tools employ OCR and machine learning to fill out printed forms automatically, enhancing data entry effectiveness [6], while usability studies of smart assistants such as Echo Show indicate high adoption rates among older adults [7]. This article contrasts design approaches, technologies like SVM, RNN, and KLM modeling, and emphasizes trends for inclusive chatbot design [4][8]. The survey concludes with existing gaps such as limited multilingualism, absence of emotional interaction, and lack of privacy-oriented personalization. It concludes that AI chatbots offer a scalable and accessible solution to enable older citizens independently to access digital welfare services, and suggests future research in multimodal interfaces and federated learning frameworks.

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A SURVEY ON- "INTELLIGENT PREDICTION, GRADING, AND STAGING OF BRAIN TUMORS WITH EXPLAINABLE DEEP LEARNING"

Prof. Shradha P. Hanabaratti*1, Nikita D. Kadrolkar*2, Praveen Kumar SI*3, Samiksha S. Patil*4, Shubham R. Pawale*5

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ABSTRACT

This paper presents a comprehensive framework for the detection, grading, and staging of brain tumors using deep learning techniques applied to MRI scans and patient metadata. Brain tumor diagnosis remains a complex challenge due to variability in tumor types and the critical nature of timely intervention. The proposed model integrates MRI analysis with patient metadata for accurate detection and prediction. To address data scarcity and imbalance, data augmentation techniques are employed to improve model generalization. Explainable AI (XAI) methods are incorporated to ensure transparency and trust in clinical decision-making by offering interpretable visual explanations. In addition to detecting tumor presence, the system predicts tumor progression, aiding in long-term treatment planning. The framework uses a multi-input data fusion approach to provide a more holistic understanding of tumor behavior. Future deployment includes a web-based interface, enabling remote and accessible usage for medical professionals, students, and researchers. This solution aims to advance neuro-oncological care, reduce diagnostic errors, and support proactive, personalized medical strategies.

12.

e-ISSN: 2582-5208
International Research Journal of Modernization in Engineering Technology and Science
(Peer-Reviewed, Open Access, Fully Refereed International Journal)
Volume:07/Issue:05/May-2025 Impact Factor- 8.187 www.irjmets.com

SPLATFLOW: A REAL-TIME GAUSSIAN-BASED RENDERING FOR CREATING 3D INTERACTIVE SCENE

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DOI : https://www.doi.org/10.56726/IRJMETS77315

ABSTRACT

This paper introduces SplatFlow, a novel, open-source 3D reconstruction and rendering system, purpose-built in C++ for real-time 3D Gaussian Splatting and interactive visualization. Our study addresses the challenge of creating efficient, accessible, and deployable tools for high-fidelity 3D environments. The system's design employs a core C++ architecture for efficient resource management and offers broad compatibility through native GPU acceleration on CUDA, ROCm, and Metal platforms, supported by a CPU fallback. The methodology incorporates a versatile input pipeline compatible with diverse SfM outputs and utilizes an adaptive densification strategy coupled with progressive training. Optimization is achieved via distinct Adam optimizers for Gaussian parameters, driven by a hybrid L1 and SSIM loss function. Our analysis concludes that SplatFlow's C++-native implementation provides superior performance and portability, while its integrated Gradio web interface significantly enhances usability by allowing browser-based interaction and visualization of 3D scenes. SplatFlow thus offers a powerful, portable, and user-friendly solution for real-time 3D scene representation in fields like virtual reality and robotics.

13.

e-ISSN: 2582-5208
International Research Journal of Modernization in Engineering Technology and Science
(Peer-Reviewed, Open Access, Fully Refereed International Journal)
Volume:07/Issue:05/May-2025 Impact Factor- 8.187 www.irjmets.com

LOCKNSHARE: SMART FILE SHARING WITH AI & BLOCKCHAIN

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DOI: https://www.doi.org/10.56726/IRJMETS78202

ABSTRACT

There is significant interest in leveraging blockchain technology to transfer and store transactions in a decentralized manner. However, limitations arise when it comes to storing large files or documents directly on the blockchain. To address this, a decentralized storage solution IPFS (InterPlanetary File System) has been introduced. IPFS is a content-addressable, distributed file system that operates similarly to a blockchain network.

Several efforts have been made to combine blockchain and IPFS to create secure data sharing mechanisms. However, inefficiencies still exist in such hybrid approaches. In this paper, we propose a secure file sharing system that incorporates distributed access control and group key management through the adoption of an **IPFS proxy**. This proxy plays a central role in managing access control policies. By combining the IPFS server and blockchain network with the IPFS proxy, the system enables users to create and join groups securely, while benefiting from decentralization.

14.

e-ISSN: 2582-5208
International Research Journal of Modernization in Engineering Technology and Science
(Peer-Reviewed, Open Access, Fully Refereed International Journal)
Volume:07/Issue:06/June-2025 Impact Factor- 8.187 www.irjmets.com

AI-ENHANCED FINE NEEDLE ASPIRATION CYTOLOGY (FNAC) IMAGE-BASED BREAST CANCER DETECTION: A DEEP LEARNING APPROACH

Prof. Vaibhav Chavan*1, Laxmi Sonnad*2, Vaishnavi Chougala*3, A Gayithri*4, B M Anjali*5

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DOI: https://www.doi.org/10.56726/IRJMETS79150

ABSTRACT

Breast cancer continues to pose a major public health challenge, particularly in low-resource settings. Fine Needle Aspiration Cytology (FNAC) is a widely accepted diagnostic technique, yet traditional manual interpretation often introduces variability and delays. This study proposes a novel AI-driven system for breast cancer detection from FNAC images using Convolutional Neural Networks (CNNs) integrated with transfer learning. By comparing hybrid models, including VGG16, Inception-Residual networks, and custom lightweight CNNs, this research aims to improve classification accuracy and computational efficiency. The proposed model is evaluated using benchmark datasets and is optimized for real-time, mobile-friendly diagnostic deployment. Results demonstrate enhanced accuracy, generalizability, and usability across diverse image sets, underscoring the transformative potential of AI in cytological diagnostics.

Keywords: FNAC, Breast cancer, Deep Learning, Convolutional Neural Networks, Image Classification.

❖ Technical Talk by Invited Guest Speaker

Guest Talk on Software Testing & Industry Tools by Mr.Bhushan Aptekar (Under Industry Mentor Interaction)

The Department of AI & DS, AITM Belagavi, organized a Guest Talk on 22nd November 2025 . The session was delivered by Mr. Bhushan Aptekar, Senior Software Test Engineer at Shipping ERP Development Services Pvt. Ltd., Mumbai. He shared in-depth knowledge of the Software Test Life Cycle (STLC) and Software Development Life Cycle (SDLC) along with insights into real-time testing practices.

During the talk, he covered topics such as current trends in IT, process knowledge, task monitoring tools, tools used in development and testing, the software testing life cycle, and the importance of professional certifications. The session provided students with valuable industry-oriented exposure and practical understanding of software testing workflows

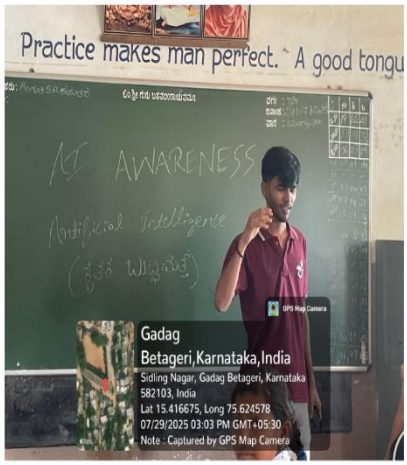
❖ AI Club Activities

Squabble Saturday": Debate Competition

The Department of Artificial Intelligence & Data Science successfully organized the "Squabble Saturday" Debate on 27th September 2025, as part of its student club activities. This engaging event aimed to enhance students' critical thinking, communication, and public speaking skills through dynamic debate sessions on a variety of thought-provoking topics. Students had the opportunity to express their ideas confidently, listen actively, and appreciate diverse perspectives. Final-year students served as judges, fostering a culture of peer learning and mentorship. The activity not only encouraged respectful dialogue and teamwork but also empowered participants to become more open-minded and articulate—skills essential for academic and professional success.

AITM's Artificial Intelligence and Data Science Department Students Spreads AI Awareness in Government Schools

Students from the Artificial Intelligence and Data Science (AIDS) Department of Angadi Institute of Technology and Management (AITM), Belagavi, conducted AI awareness programs in government schools across Karnataka. The initiative aimed to introduce school students to the fundamentals of Artificial Intelligence and its real-world applications. Through engaging sessions and hands-on activities, the students simplified complex concepts and encouraged interest in technology among young minds. The program reflects AITM's commitment to education, innovation, and social responsibility.



❖ Back Page – Quote, Contact, and Acknowledgments

AI Quote of the Month:

"AI is not about machines replacing humans, but machines augmenting humans."

— Salesforce

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