



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

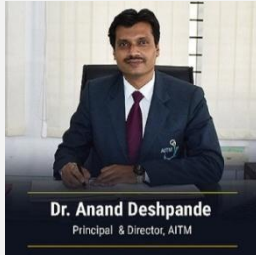
Technical E-Magazine

Department of Artificial Intelligence & Data Science

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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 (Jan–June 2026)

1. The Department of Artificial Intelligence and Data Science at Angadi Institute of Technology and Management (AITM) was the first department in India to receive NBA accreditation under the Tier-II category.
2. Prof. Chetan Shankar Patil completed the NPTEL certification course on “Research Methodology” with a consolidated score of 65%.
3. Prof. Chetan Shankar Patil completed the NPTEL certification course on “Cryptography and Network Security” with a consolidated score of 55%.
4. Prof. Chetan Shankar Patil completed the NPTEL certification course on “Introduction to Internet of Things” with a consolidated score of 71%.
5. Prof. Chetan Shankar Patil completed the NPTEL certification course on “Research and Publication Methods” with a consolidated score of 69%.

6. Alumni Talk for 4th and 6th semester students on 23/03/2026 by Mr. Sambram S. Arkasali and Mr. Nishant R. Bhandare
7. An insightful session on “Emerging Technologies: AI, Machine Learning & the Future of Software Engineering” on 07/05/2026 by Mohammed Shaheed R Maniyar, Founder of AZDeploy Academy and a Senior Full Stack Developer with over 8 years of industry experience.
8. The 4th Semester students of the Department of Artificial Intelligence and Data Science, Angadi Institute of Technology & Management, Belagavi, participated in an educational visit to DEFTECH Bharat 2026 at Bengaluru on 21 May 2026.
9. Shivalingsarj Mallasarja Desai of 6th Sem AI&DS Department Led the design, development, and deployment of the official VENCER 2K26 website using React, TypeScript, Tailwind CSS, Supabase, and Vercel, delivering the complete digital platform for the National-Level Techno-Cultural Fest on April 2026.

The Rise of "Intelligent India": A Technological Snapshot



Prof. Chetan Shankar Patil

Asst Prof. AI&DS Dept

Introduction

As of 2026, India is rapidly transitioning from a phase of foundational digitization to one of "Intelligent India". This evolution is characterized by the integration of advanced artificial intelligence, indigenous research initiatives, and robust cloud infrastructure aimed at creating a self-reliant and data-driven economy.

1. The Artificial Intelligence Revolution

AI has moved beyond mere experimentation to become a core enabler of national growth and public service delivery.

- **IndiaAI Initiatives:** The national IndiaAI program has made monumental strides, successfully developing dozens of AI prototypes and deploying scalable solutions across public-sector institutions.
- **Sovereign AI & Startups:** Major national showcases, including the India AI Impact Summit, have highlighted India's robust ecosystem of indigenous startups building sovereign large language models, specialized robotics, and localized AI applications.
- **Skill Development:** Massive public-private partnerships—such as large-scale corporate training initiatives aiming to upskill tens of thousands of young people across multiple states—are actively fortifying India's future AI talent pipeline.

2. Massive R&D and Innovation Funding

The Indian government and key industry players are aggressively pushing to establish the country as a global technology hub through targeted capital investment and multi-stakeholder collaboration. Programs like national hackathons, innovation challenges, and dedicated deep-tech funds are successfully bridging the gap between academic research and commercial deployment.

3. Key Growth Sectors Powered by Tech

Technological advancements are serving as the backbone for several high-growth industries:

- **Smart Infrastructure & Urban Governance:** Indian cities are rapidly adopting AI-powered video analytics, intelligent traffic monitoring, and automated security systems to boost public safety and operational efficiency.
- **Cloud & Edge Computing:** With the widespread rollout of 5G, domestic cloud platforms and data centers are emerging as critical infrastructure, ensuring low-latency services, data localization compliance, and stronger cyber resilience.
- **Advanced Manufacturing & Green Tech:** Technology integration is streamlining supply chains, accelerating EV adoption, and advancing clean energy frameworks.

4. Building an Autonomous Future

Industry leaders emphasize that the next phase of India's tech journey focuses heavily on security and autonomy. By reducing import dependence and fostering home-grown innovation—particularly in cloud architecture, cybersecurity, and real-time data processing—India is positioning itself not just as a massive consumer market, but as a robust global technology exporter.

Conclusion

The technological landscape in India is defined by a strategic shift toward intelligent, predictive, and interconnected systems. Through structured policy pushes, expanding computational capacities, and youth-led startup innovations, India is rapidly building an ecosystem where advanced technology directly enhances governance, safety, and national productivity.

FEDERATED LEARNING: PRIVACY-PRESERVING AI



By Mr Mahesh Chandagadkar

Student 7th sem

Introduction

Artificial Intelligence is widely used in applications such as healthcare, online banking, recommendation systems, and mobile devices, but it often requires large amounts of data for training, raising privacy concerns. Federated Learning is a modern machine learning approach that enables AI models to learn from data stored on individual devices instead of collecting it on a central server. By sharing only model updates rather than personal data, it enhances privacy, reduces security risks, and supports compliance with modern data protection standards.

Understanding Federated Learning

Unlike traditional machine learning, where data is collected and processed in a central location, Federated Learning keeps data on users' devices throughout the training process. A global model is sent to participating devices, trained locally using their own data, and only the updated model parameters are shared with the server. These updates are combined to improve the global model, enabling collaborative learning while ensuring that users retain control over their personal information.

Future Outlook

Federated Learning is expected to become a key technology for developing secure and privacy-focused AI systems as concerns about data protection continue to grow. It is already being adopted in sectors such as healthcare, finance, smart cities, and autonomous vehicles. Future advancements will focus on faster communication, secure model aggregation, stronger encryption techniques, and integration with Edge AI and next-generation networks, making Federated Learning more efficient, scalable, and reliable for real-world applications.

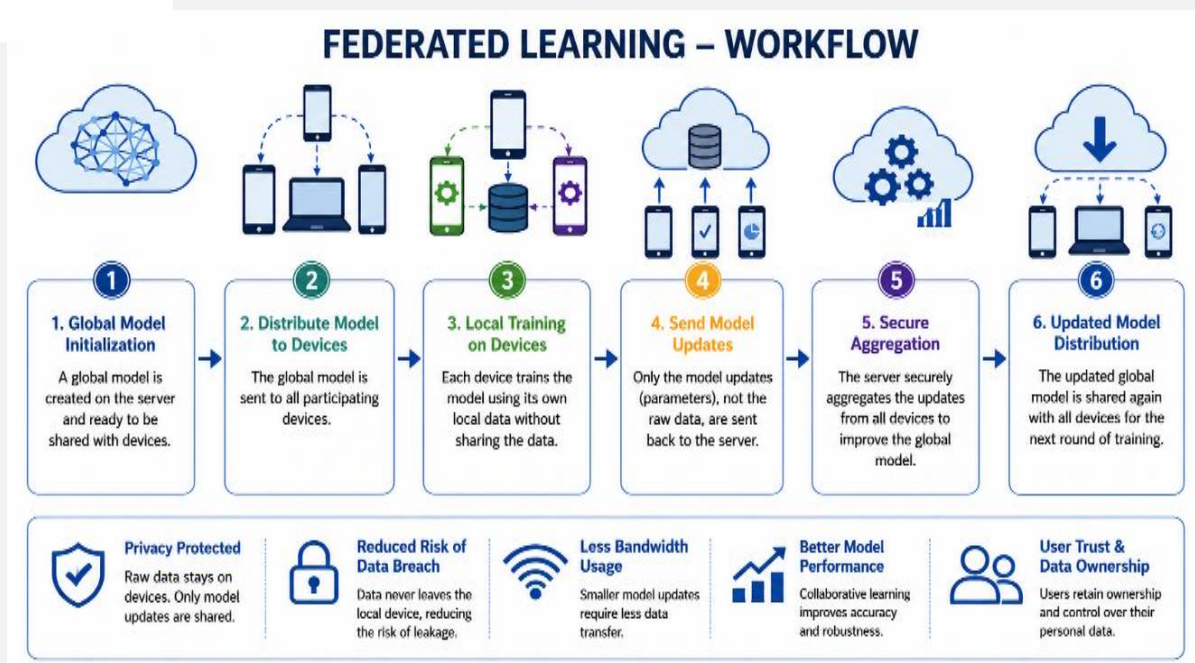


Fig 1: Federated Learning- Workflow

Key Milestones in Federated Learning

Table 1: Key Milestones in Federated Learning

Period / Year	Milestone	Description
2016	Research Introduction	Federated Learning was introduced as a distributed learning approach to improve data privacy.
2017	Mobile Device Training	Large-scale experiments demonstrated AI training across smartphones without sharing user data.
2018	Secure Aggregation	Privacy-preserving aggregation techniques enhanced data security during model updates.
2019–2020	Healthcare Adoption	Hospitals began exploring Federated Learning for collaborative disease prediction without exchanging patient records.
2021–2023	Enterprise Applications	Financial institutions, IoT systems, and cloud platforms adopted Federated Learning for secure AI development.
2024 - onwards	Next-Generation AI	Federated Learning is being integrated with Edge AI, Generative AI, and intelligent connected devices.

Applications of Federated Learning

Healthcare: Hospitals can collaboratively train disease prediction models while keeping patient records confidential within their own systems.

Finance: Banks use Federated Learning to improve fraud detection and credit risk assessment without exposing sensitive customer information.

Smartphones: Mobile applications such as predictive keyboards and voice assistants improve their accuracy using local user interactions while protecting personal data.

Internet of Things (IoT): Smart devices collaboratively learn from distributed data, enabling efficient automation without transferring large amounts of information.

Autonomous Vehicles: Self-driving vehicles can share driving experiences through model updates instead of exchanging raw sensor data, improving safety while preserving privacy.

Conclusion:

Federated Learning represents a significant advancement in privacy-preserving artificial intelligence. By allowing machine learning models to learn from decentralized data, it balances innovation with user privacy. This approach enables organizations to build intelligent systems without compromising sensitive information. As AI continues to expand across industries, Federated Learning will become an essential technology for developing secure, efficient, and trustworthy machine learning solutions.

MACHINE LEARNING OPERATIONS



(MLOps)

By Miss Sneha Mirashi

Introduction

Machine Learning Operations (MLOps) is a set of practices that combines machine learning, software engineering, and DevOps to simplify the development, deployment, and maintenance of machine learning models. As organizations increasingly rely on AI-driven solutions, MLOps helps ensure that models are reliable, scalable, and continuously monitored throughout their lifecycle. It bridges the gap between data scientists and operations teams, enabling faster delivery of intelligent applications.

Understanding MLOps

Developing a machine learning model is only one part of an AI project. A model must be trained with quality data, tested for performance, deployed to production, and regularly updated as new data becomes available. MLOps provides a structured workflow to manage these tasks efficiently.

It promotes collaboration between data scientists, machine learning engineers, and IT teams by automating repetitive processes such as data validation, model training, version control, deployment, and monitoring. This results in faster development cycles, improved model accuracy, and better business outcomes.

Future Outlook

The future of MLOps is focused on greater automation, improved governance, and responsible AI practices. With the rapid growth of cloud computing and generative AI, organizations are adopting advanced MLOps platforms to deploy models at scale.

Future MLOps solutions will emphasize explainable AI, automated model retraining, continuous monitoring, and stronger security. As AI applications become more common across industries, professionals with MLOps skills will play an important role in building trustworthy and efficient machine learning systems.

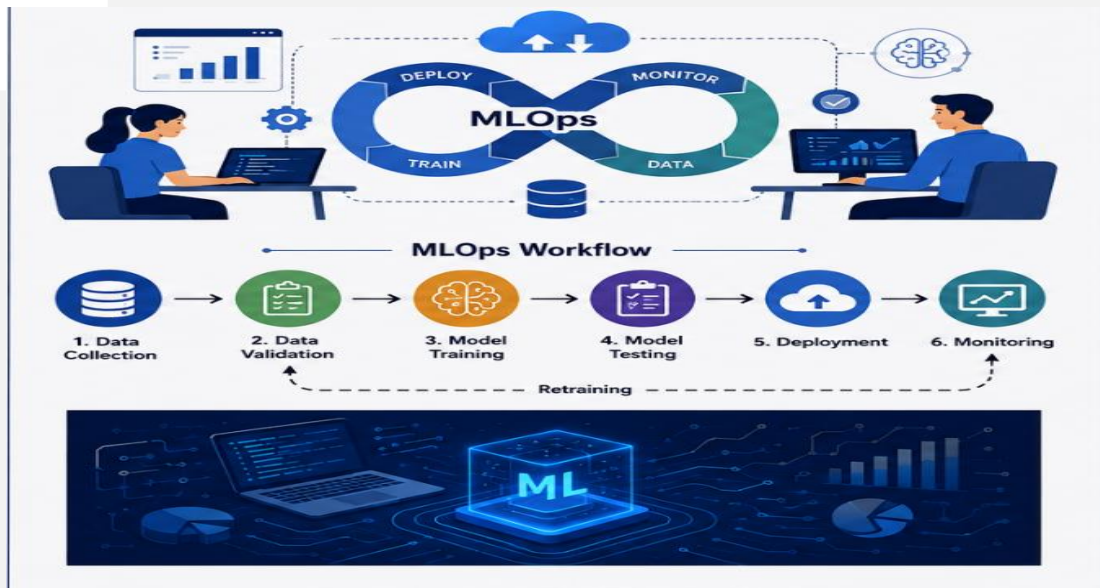


Fig2 : MLOps Workflow

Key Milestones in MLOps Evolution

Table 2: Key Milestones in MLOps Evolution

Period / Year	Milestone	Description
2015–2016	Rise of DevOps in AI	Organizations started applying DevOps practices to machine learning projects.
2017	ML Pipeline Automation	Automated workflows for data preparation, training, and testing became popular.
2018	MLOps Frameworks	Open-source tools such as Kubeflow and MLflow simplified ML lifecycle management.
2019–2020	Cloud-based MLOps	Cloud platforms introduced managed services for training and deployment.
2021–2023	Continuous Monitoring	Model performance tracking and automatic retraining gained importance.
2024 onwards	Generative AI Integration	MLOps expanded to support large language models, RAG systems, and AI governance.

Applications of MLOps

Healthcare :MLOps enables hospitals to deploy AI models for disease prediction, medical image analysis, and patient monitoring while ensuring models remain accurate over time.

Finance: Banks use MLOps to maintain fraud detection systems, credit risk analysis, and financial forecasting with continuous performance monitoring.

Retail and E-commerce: Recommendation systems, customer demand forecasting, and inventory optimization are managed efficiently using MLOps pipelines.

Manufacturing: Predictive maintenance models are continuously updated to reduce equipment failures and improve production efficiency.

Smart Surveillance: MLOps helps deploy real-time object detection and anomaly detection systems while monitoring model performance and updating them as new video data becomes available.

Conclusion:

Machine Learning Operations has become an essential part of modern artificial intelligence systems. It provides a systematic approach to managing the complete lifecycle of machine learning models, from development to deployment and maintenance. By combining automation, collaboration, and continuous improvement, MLOps helps organizations build reliable AI solutions that deliver long-term value. As artificial

❖ Student Innovation Corner:

- Three student projects from our department have been selected for the KSCST 49th Series Student Project Programme (SPP) 2025–2026 Sponsored Projects.

 KARNATAKA STATE COUNCIL FOR SCIENCE AND TECHNOLOGY Indian Institute of Science Campus, Bengaluru – 560 012 Website: www.kscst.org.in , https://kscst.karnataka.gov.in Email: spp@kscst.org.in Tel: 080-2334 1652, 2334 8848-49/40							
49th series of Student Project Programme (SPP): 2025-26							
List of Student Project Proposals Approved for Sponsorship							
17. ANGADI INSTITUTE OF TECHNOLOGY AND MANAGEMENT, BELAGAAVI							
Sl. No.	PROPOSAL REFERENCE NO.	PROJECT TITLE	COURSE	BRANCH	NAME OF THE GUIDE(S)	NAME OF THE STUDENT(S)	AMOUNT SANCTIONED (Rs.)
60.	49S_BE_1803	INTELLIGENT SYSTEM FOR THYROID DISEASE PREDICTION USING MACHINE LEARNING ALGORITHMS	B.E.	ARTIFICIAL INTELLIGENCE AND DATA SCIENCE	Prof. SAGAR BIRJE Dr. VEENA DESHMUKH	Ms. LAXMI GADAVI Ms. SAHANA Ms. MEGHA M BANDI Ms. MANALI KUDACHE	4,500.00
61.	49S_BE_3659	DEEPSHIELD AI: DEEPPAKE DETECTION USING AUDIO-VISUAL INCONSISTENCIES	B.E.	ARTIFICIAL INTELLIGENCE AND DATA SCIENCE	Dr. A. A. QAZI Prof. SAGAR BIRJE	Mr. AKASH B JARALI Mr. ABHISHEK DYAVANAGOUDRA Mr. GAJANAND MORE Mr. PRASAD MANOLKAR	2,500.00
67.	49S_BE_2974	AIOT-BASED WATER MANAGEMENT SOLUTIONS FOR SUSTAINABLE SUGARCANE FARMING	B.E.	COMPUTER SCIENCE AND ENGINEERING	Prof. MANJUNATH PATIL	Mr. SOMASHEKHAR GANGAPPA GUDDAPUR Mr. VISHWANATH SHIVABASU HAVERI Ms. DIVYA RAGHAVENDRA KONNUR Ms. CHAITRA MALLAPPA GANGAI	4,500.00

Expert Talk:

Expert Talk: Exploring the Future of Technology at AITM

The Department of AI & Data Science at Angadi Institute of Technology and Management (AITM), Belagavi, hosted a Expert Talk: Exploring the Future of Technology at AITM

Abstract: Future of Technology

The Department of Artificial Intelligence & Data Science (AI & DS) organized an insightful session on “Emerging Technologies: AI, Machine Learning & the Future of Software Engineering” on 07/05/2026. The session was delivered by Mohammed Shaheed R Maniyar, Founder of AZDeploy Academy and a Senior Full Stack Developer with over 8 years of industry experience. The session provided students with a clear understanding of the latest advancements in Artificial Intelligence, Machine Learning, and Generative AI, along with their real-world applications and emerging career opportunities. Students also gained valuable insights into how these technologies are transforming the software industry and the essential skills required to stay relevant and succeed in today’s competitive job market. The session was highly informative and inspired students to explore future technologies and industry trends.



❖ Educational Visit

Educational Visit to DEFTECH Bharat 2026 by 4th Semester AI & DS Students

Abstract: Educational Visit to DEFTECH Bharat

The 4th Semester students of the Department of Artificial Intelligence and Data Science, Angadi Institute of Technology & Management, Belagavi, participated in an educational visit to DEFTECH Bharat 2026 at Bengaluru on 21 May 2026. The visit was organized to provide students with practical exposure to emerging technologies and industrial advancements in the fields of defence technology, artificial intelligence, aerospace, and advanced engineering systems.

During the visit, students explored various technology exhibits, observed innovative defence solutions, and interacted with industry professionals to understand real-world applications of Artificial Intelligence and emerging technologies. The students gained insights into cutting-edge developments in autonomous systems, cybersecurity, defence manufacturing, and next-generation technological innovations.



The educational visit aimed to bridge the gap between classroom learning and industry practices while encouraging students toward innovation, research, and skill development. Faculty members accompanying the students emphasized the importance of industrial exposure in enhancing technical knowledge and preparing students for future career opportunities.

The visit concluded successfully with students gaining valuable learning experiences and exposure to advancements shaping the future of technology.



AI Club Activities

Introduction

The **Department of Artificial Intelligence & Data Science** organized a **3-Hour AI RapidBuild Hackathon** on **14 March 2026 at 10:00 AM** in the **Department Seminar Hall** as a club activity aimed at fostering innovation, creativity, teamwork, and practical problem-solving among students.

The hackathon provided participants with an opportunity to identify real-world problems and rapidly develop **AI-based solutions and functional prototypes** within a limited timeframe. Through hands-on development and collaboration, students applied their knowledge of **Artificial Intelligence, Data Science, Machine Learning, and emerging AI tools** to create innovative and practical solutions.

The activity aimed to strengthen students' **technical skills, critical thinking, creativity, teamwork, and entrepreneurial mind set**, while encouraging them to transform innovative ideas into practical, technology-driven solutions.



❖ Back Page – Quote, Contact, and Acknowledgments

AI Quote of the Month:

“The real power of AI lies not in replacing human intelligence, but in enhancing human creativity, curiosity, and potential.”

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