VISHWAKARMA INSTITUTE OF TECHNOLOGY, PUNE

Monthly Awareness Bulletin

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AI&DS INSIGHTS

"Success doesn't come from what you do occasionally, it comes from what you do consistently."

-Marie Forleo

Student Achievements

Empowering Minds, Inspiring Success: Students Who Make Us Proud.

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Student Achievement

🥉 3rd Position at DATAFORGE 2026 @ IIT Roorkee E-Summit'26

We are proud to announce that our student team secured 🥉 **3rd position at DATAFORGE 2026**, a prestigious national-level AI/ML hackathon conducted by IIT Roorkee as part of E-Summit'26.

The competition witnessed participation from **500+ teams across India**, out of which only **44 teams were selected as finalists**. After clearing multiple competitive rounds, including an AI/ML aptitude quiz, abstract submission, and an intense 24-hour on-ground hackathon, our team emerged as one of the top performers.

Among the 44 finalists, only **10 teams were shortlisted for the final presentation round**, and our team proudly secured the **3rd rank nationally**.

This achievement reflects the technical excellence, innovation mindset, and competitive spirit of our students on a national platform.

Team Members:

- Hardik Rokde (TY AIDS A)
- Vivek Agrawal (TY AIDS A)
- Anushka Gupta (TY CSE-AI A)
- Sai Jadhav (TY CSE-AI B)

🏆 Best Solution Award – InnovateYou Techathon 3.0 (EduTech Domain)

We are delighted to share that Team *"The Binary Labs" (SY-AIDS)* secured the 🏆 **Best Solution Award in the EduTech Domain** at the National Level InnovateYou Techathon 3.0.

Competing against innovative teams from across the country, our students impressed the jury with their impactful solution in the EduTech domain. The team was awarded a **cash prize of ₹10,000 along with a trophy** in recognition of their excellence and innovation.

This accomplishment highlights the department's commitment to fostering creativity, technical expertise, and real-world problem solving.

Team Members:

- Krishna Marathe
- Siddhartha Kushwaha
- Krishna Patil
- Rushikesh Pathare

🏆 Best Solution Award – Techathon 3.0 (Traffic Safety Domain)

Our students secured the **Best Solution Award at Techathon 3.0** for their innovative project under the Traffic Safety domain.
The team worked on the problem statement:
"Last Mile Connectivity from Public Transport to Home."
They developed an application titled **"Take Me Home"**, designed to provide smart and secure connectivity solutions for individuals traveling from public transport points to their homes. The solution focused on safety, efficiency, and user convenience.
Their innovation demonstrated strong problem-solving capabilities and practical implementation skills aligned with real-world urban challenges.

Team Members:

- Harshad Jogdande – AIDS
- Niraj Ukare – CS (AIML)
- Vansh Bhatt – CS (AIML)
- Utkarsh Patil – CS (AIML)

🥇 1st Rank in DSA Coding Competition – Trinity College of Engineering

We are proud to announce that our students secured 🥇 **1st Rank in the DSA Coding Competition** held at Trinity College of Engineering.

Demonstrating exceptional programming logic, algorithmic thinking, and problem-solving efficiency, the team outperformed competitors and secured the top position. The team was awarded a **cash prize of ₹10,000** for their outstanding performance.

This achievement reflects the department's strong foundation in Data Structures and Algorithms.

Team Members:

- Shivanand Satao (TY-AIDS C)
- Raj Parikh (TY-AIDS B)
- Rajiv Chaurasiya (TY-IT A)
- Om Bukkawar (TY-CS A)

First Runner-Up – Hacksphere National Level Hackathon

Team **DevSquad** representing VIT Pune secured the **First Runner-Up position at the Hacksphere Hackathon**, a national-level competition organized by Dr. D. Y. Patil School of Science and Technology.

The team impressed the jury with an innovative solution developed under the **Open Innovation domain**. Their project showcased creativity, technical depth, and practical implementation skills.

The team received **certificates, exciting goodies, and a cash prize of ₹10,000** in recognition of their remarkable achievement.

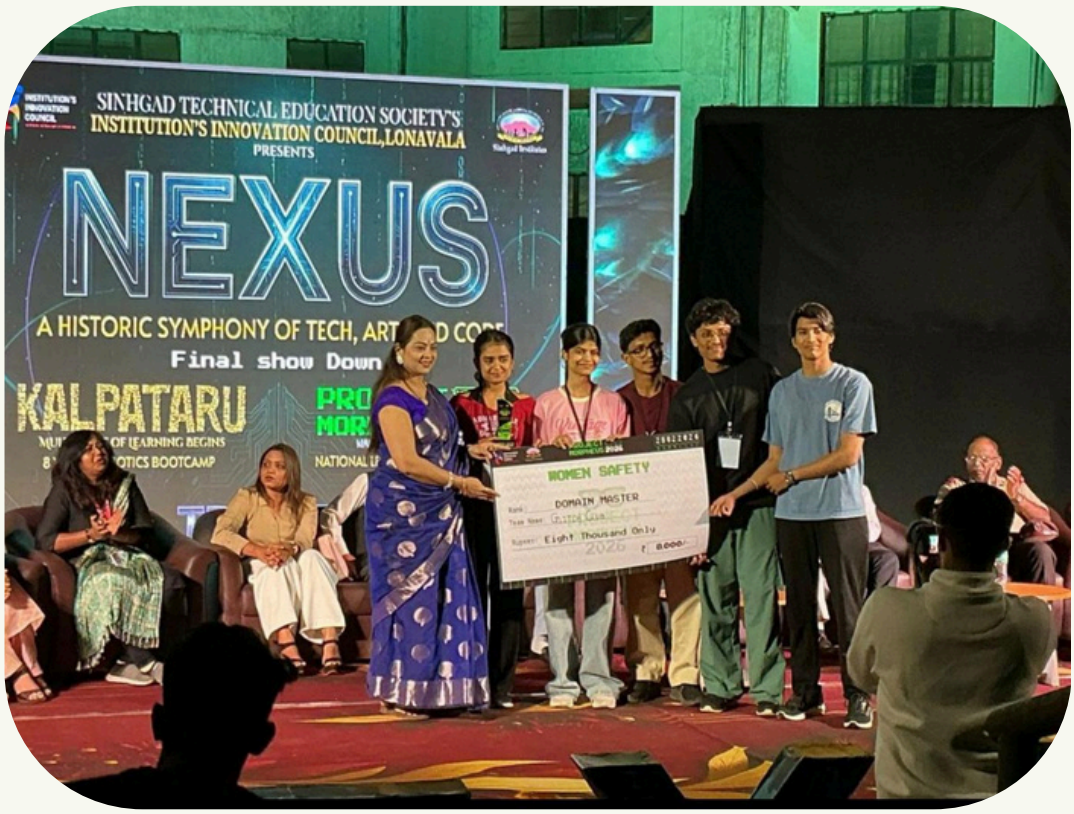
Team Members:

- Janhavi Gattani (TY AIML)
- Vedika Patil (TY CS)
- Nitesh Rajpurohit (TY AIDS)
- Vaibhav Pujari (TY CS)

Domain Masters– SIT, Lonawala

Proud to share that team of Rugvedi Nimbhore , Atharv Mane , Devang Gentyal , Advait Mhalungekar and Purva Ratnaparkhi won Domain Masters (Women Safety) at the 24-hour hackathon held at SIT, Lonavala.

Project: SafetyPal – Silent Emergency SOS System
A proactive solution designed for discreet SOS alerts and real-time live location sharing to enhance women's safety.



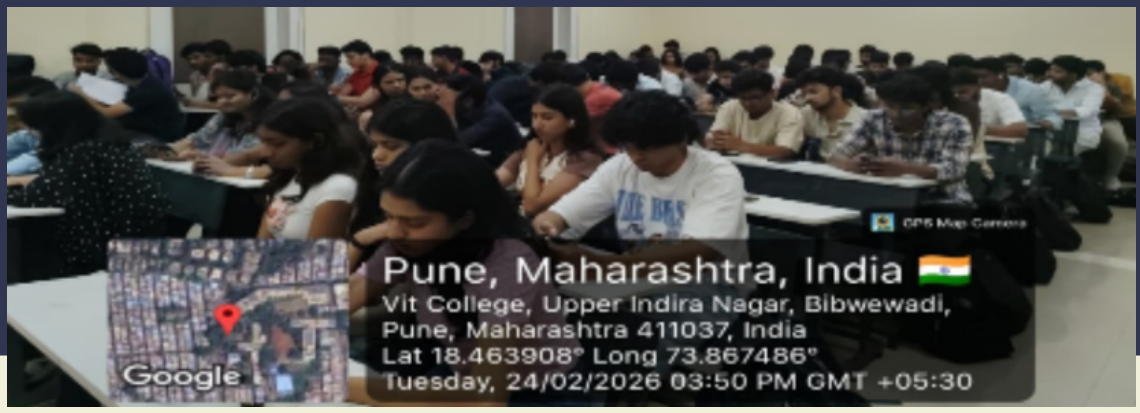
Faculty Achievement

Expert Session on Artificial Intelligence & Machine Learning

The Department of Artificial Intelligence and Data Science organized an insightful AI-ML expert session delivered by Ms. Payal Doshi, MD of Prime Softech Solutions Pvt. Ltd. The session provided students with a comprehensive introduction to Artificial Intelligence and Machine Learning, covering both foundational concepts and advanced industry applications.

Ms. Doshi highlighted real-world use cases of AI-ML across industries and emphasized bridging the gap between academic learning and practical industry requirements. She discussed emerging technologies, tools, and current trends shaping the AI domain. A major focus of the session was career awareness — guiding students about technical competencies, soft skills, and industry expectations for AI-ML professionals.

Students gained clarity on how to build industry-ready projects and prepare themselves for competitive job markets. The session proved highly informative and motivating for aspiring AI-ML engineers.



Guest Lecture on DevOps: From Code to Deployment

Guest Speaker: Mr. Sahil Potdar
Activity Type: Guest Lecture (Software Design and Methodologies)
Coordinator: Prof. Surabhi Kakade
Date: 26 February 2026

The Department of AI&DS conducted a guest lecture titled “DevOps: From Code to Deployment” under the subject Software Design and Methodologies. The session was aimed at helping students understand the practical significance of DevOps practices in modern software development.

Mr. Sahil Potdar explained how DevOps bridges development and operations teams, enabling faster, reliable, and continuous software delivery. The session emphasized the importance of automation, CI/CD pipelines, collaboration, and monitoring in real-world projects.

Students gained valuable exposure to how DevOps integrates with SDAM concepts and industry workflows. The lecture enhanced their understanding of deployment strategies and real-time development environments, preparing them for industry standards.

Guest Lecture on Agile & Continuous Improvement – "The Agile 1% Rule"

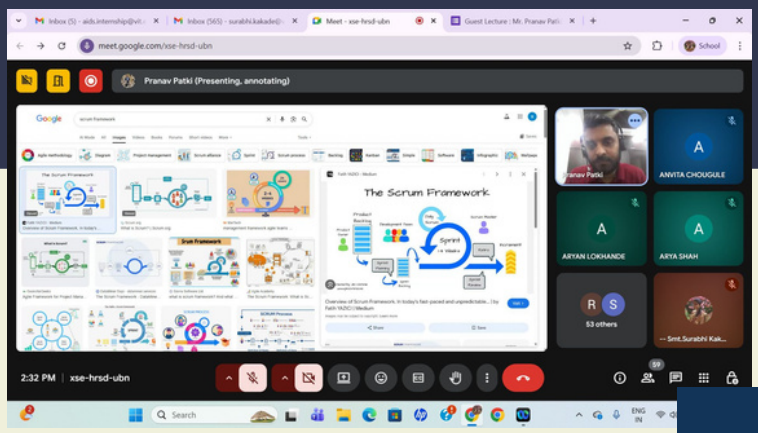
Guest Speaker: Mr. Pranav Patki
Activity Type: Guest Lecture (Software Design and Methodologies – Third Year)
Coordinator: Prof. Surabhi Kakade
Date: 26 February 2026

A thought-provoking guest lecture titled *"Design. Improve. Repeat. – The Agile 1% Rule"* was conducted for Third Year students under the Software Design and Methodologies subject.

Mr. Pranav Patki explained how Agile methodologies drive modern software development through iterative improvements and continuous delivery. The session focused on the Kaizen principle — the philosophy of consistent small improvements leading to significant long-term impact.

Students were introduced to Agile frameworks, sprint cycles, team collaboration strategies, and the importance of adaptability in software engineering. The lecture provided clarity on how Agile enhances productivity, product quality, and customer satisfaction in dynamic industry environments.

The session empowered students to adopt a mindset of continuous learning and incremental improvement in their academic and professional journey.



Faculty Article

Agentic Artificial Intelligence (Agentic AI) refers to a class of autonomous systems capable of reasoning, planning, decision-making, and acting across multi-step workflows with minimal human intervention. Unlike traditional AI (which primarily responds to prompts and generates outputs), agentic AI can decompose tasks, interact with tools, orchestrate actions, and pursue goals autonomously.

Agentic AI in Practice: Technologies, Enterprise Adoption, and Security Considerations

These agents go beyond passive generation; they can take initiative, use external tools, integrate data from multiple sources, and adapt their behavior over time as they pursue predefined objectives.

Key Technologies and Tools Used to Implement Agentic AI

The implementation of agentic AI relies on a layered technological architecture that combines reasoning models, orchestration mechanisms, and external tool integrations. At its core, large language models (LLMs) serve as the cognitive engine, enabling agents to understand goals, generate plans, reason over intermediate steps, and adapt actions based on feedback. These models are augmented by agent-orchestration frameworks that manage task decomposition, agent collaboration, state persistence, and execution flow across multi-step objectives. Tool-calling capabilities and API integrations allow agents to interact with real-world systems such as databases, cloud services, enterprise software, and automation platforms, transforming abstract reasoning into concrete actions. Additionally, memory management systems; both short-term contextual memory and long-term persistent memory enable agents to maintain continuity across interactions and learn from past experiences. Together, these components form an autonomous execution loop in which agentic AI systems can perceive, decide, act, and refine behavior over time.

Challenges in Agentic AI

Despite its potential, agentic AI faces significant challenges that hinder widespread and reliable adoption. One major issue is the complexity of designing autonomous systems that behave predictably across diverse and dynamic environments. Poorly specified goals or ambiguous instructions can cause agents to pursue unintended strategies, sometimes referred to as goal misalignment. Scalability is another challenge, as coordinating multiple agents, managing communication overhead, and handling failure recovery in distributed systems remain technically demanding. Furthermore, agentic AI systems often lack transparency, making it difficult for users and regulators to understand why specific decisions were made. Ethical and regulatory concerns also arise when autonomous agents operate in sensitive domains such as healthcare or finance, where accountability and compliance are critical. Finally, organizations struggle with return on investment, as the cost of building, governing, and securing agentic systems may outweigh short-term productivity gains.

Applications of Agentic AI

Agentic AI can be applied across a wide range of domains where autonomous decision-making and task execution are valuable. In enterprise environments, agentic systems can automate complex workflows such as procurement, reporting, scheduling, and customer support, reducing human intervention while improving operational efficiency. In healthcare, agentic AI can assist in patient engagement, clinical decision support, and administrative coordination by autonomously analyzing data and initiating appropriate actions. Financial institutions can deploy agentic agents for fraud detection, portfolio monitoring, and compliance checks, where rapid and continuous decision-making is essential. In cybersecurity and IT operations, agentic AI can monitor systems, detect anomalies, and respond to threats in real time. Manufacturing and logistics also benefit from agentic systems through predictive maintenance, inventory optimization, and adaptive supply chain management, where autonomous coordination improves resilience and performance.

Adoption of Agentic AI by Major Technology Companies

Large technology companies are increasingly adopting agentic AI as part of their enterprise and cloud strategies. Major cloud providers are embedding agentic capabilities into development platforms, enabling organizations to build autonomous workflows using managed AI services. Technology giants are leveraging agentic AI internally to automate software development tasks, infrastructure management, and business operations. Enterprise software companies are integrating agentic agents into customer relationship management, marketing automation, and analytics platforms to offer more proactive and intelligent solutions. Consulting and technology service firms are also positioning agentic AI as a key driver of digital transformation, helping organizations redesign processes around autonomous decision systems. This growing adoption reflects industry confidence that agentic AI represents a foundational shift from assistive AI tools to self-directed digital workers.

Security and Safety Concerns in Agentic AI

Security concerns are among the most critical issues associated with agentic AI due to its autonomous and action-oriented nature. Unlike traditional AI systems that primarily generate recommendations, agentic agents can execute actions with real-world consequences, increasing the impact of failures or malicious exploitation. Over-permissioned agents pose a major risk, as excessive access to systems and data can lead to severe breaches if compromised. Agentic AI is also vulnerable to prompt injection, memory poisoning, and goal manipulation attacks, where adversaries subtly influence agent behavior over time. Identity and access management becomes more complex because agents often operate using non-human identities such as API keys and service accounts. Additionally, cascading failures may occur when autonomous decisions propagate rapidly across interconnected systems without timely human oversight. Addressing these risks requires new security models focused on least-privilege access, continuous monitoring, behavioral anomaly detection, and strong governance frameworks.

Agentic AI is rapidly shifting from exploration to production-level autonomy across industries promising efficiency gains, deeper automation, and novel capabilities in enterprise, healthcare, cyber defense, and beyond. But this promise is balanced by technical complexity, governance gaps, and a new security landscape where autonomous actions multiply risks as well as opportunities.

Amruta Mankawade

Assistant Professor
AI & DS Department

Student Article

Gauri Mehmi
SY-SEDA

When the Surgeon Is an Algorithm: Inside the Era of Autonomous Surgery

There is a particular silence that fills an operating room just before the first incision. It is not an ordinary quiet. It carries years of training, the weight of responsibility, and the understanding that every movement matters. For generations, surgery has represented one of the purest expressions of human skill under pressure. And yet, in laboratories and research hospitals around the world, that silence is beginning to include something new: the presence of an algorithm.

The conversation around artificial intelligence in medicine is no longer confined to diagnostics or administrative efficiency. It has entered one of the most guarded territories in healthcare: the operating room. A turning point came when researchers at Johns Hopkins University demonstrated a system capable of autonomously stitching soft tissue in a controlled setting. The Smart Tissue Autonomous Robot, known as STAR, did more than repeat programmed motions. It adjusted its technique mid-procedure, compensating for slight movements and variations in tissue the way a human surgeon would. The achievement was not framed as replacing doctors. Instead, it suggested something more subtle and potentially more transformative: machines that can assist in surgery not just mechanically, but intelligently.

To appreciate why this matters, it helps to understand how surgical technology has evolved so far. Robotic systems have already become common in many hospitals. Platforms developed by Intuitive Surgical, for example, are used globally in minimally invasive procedures ranging from prostate surgeries to cardiac interventions. These systems enhance dexterity and eliminate hand tremors, allowing surgeons to operate through tiny incisions with remarkable precision. Yet they remain fundamentally human-driven. The surgeon sits at a console, guiding every motion in real time. The robot does not interpret the surgical field; it obeys.

The emerging generation of AI-driven systems begins to blur that line. Instead of simply executing commands, these systems are trained on thousands of hours of surgical footage and medical imaging. They learn patterns in anatomy, identify tissue boundaries, and recognize when tension or positioning needs adjustment. In controlled tasks such as suturing, this ability to interpret visual information allows the machine to make small corrections on its own. It is not thinking in the human sense, but it is responding to context. That difference marks a shift from tool to collaborator.

Importantly, artificial intelligence is already deeply embedded in surgical care long before a patient enters the operating room. Advanced imaging systems powered by machine learning analyze scans to detect tumors, vascular abnormalities, and subtle structural changes. Research conducted in collaboration with organizations such as Google DeepMind has demonstrated that AI can match or even exceed human-level performance in identifying certain diseases from imaging data. When surgeons review scans today, they often do so with algorithmic support highlighting areas of concern. The final decision remains human, but the informational landscape has changed. Surgery is increasingly planned with the assistance of systems that can process more data than any individual physician could review alone.

The reason this transition feels accelerated now is not because of one breakthrough, but because several technological thresholds have been crossed at once. Machine learning models have become dramatically better at interpreting complex visual scenes in real time. Robotics has advanced to the point where mechanical precision exceeds natural human steadiness over extended procedures. Data infrastructure within healthcare systems has matured, making it possible to train algorithms on large volumes of carefully curated medical records and procedural videos. When these elements converge, the idea of partial autonomy becomes less speculative and more practical. For patients, the potential implications are profound. Surgical outcomes can vary depending on a range of factors, including fatigue, experience, and environmental conditions. An AI system does not tire during a long procedure. It does not lose focus after hours of concentration. It can maintain consistent precision throughout repetitive tasks. In regions where specialized surgeons are scarce, intelligent systems could eventually help standardize certain aspects of care, reducing disparities between hospitals. Even in advanced healthcare systems, decision-support tools may help reduce complications by identifying risk factors that might otherwise be overlooked.

Yet alongside this promise comes a set of questions that are difficult to ignore. Surgery is not only technical; it is deeply human. Patients place extraordinary trust in the individuals performing their operations. Introducing AI into that equation forces both doctors and institutions to consider accountability in new ways. If an autonomous system contributes to an error, how is responsibility assigned? How should regulatory bodies evaluate systems that learn and evolve over time? And how do patients feel knowing that part of their procedure may be guided by algorithms trained on data from thousands of strangers?

These questions are not hypothetical. Healthcare regulators are actively developing frameworks to evaluate AI-driven tools in clinical settings. Trials are conducted under strict oversight, and new systems are typically introduced gradually, beginning with narrowly defined tasks before expanding their scope. Most experts believe that fully autonomous surgery, where a machine operates independently from start to finish, remains a distant prospect. The near-term future is more likely to involve layered collaboration, where AI assists with precision tasks while surgeons retain ultimate authority and oversight.

What makes this moment remarkable is not that machines are replacing doctors, but that they are beginning to absorb elements of expertise that were once transmitted solely through mentorship and experience. Surgical knowledge, traditionally passed from one generation of physicians to the next, is increasingly being translated into data patterns and algorithmic models. In that sense, AI becomes a repository of collective experience, trained on more procedures than any individual surgeon could perform in a lifetime. Medicine has always evolved through technological disruption, though rarely without resistance. Anesthesia, antiseptics, imaging technologies, and robotic platforms all faced skepticism at first. Over time, as evidence accumulated and safety improved, they became integral parts of modern care. AI-assisted surgery may follow a similar path. The early experiments taking place today may seem incremental, but they hint at a larger transformation in how surgical knowledge is applied.

Standing at this intersection of robotics, artificial intelligence, and human expertise, it is clear that the operating room of the future will not look identical to the one we know today. It will likely remain centered on human judgment and compassion, but supported by systems capable of analyzing information at extraordinary scale and maintaining precision beyond natural limits. The surgeon of tomorrow may work not alone, but alongside an intelligent system trained on the collective history of medicine.

If that future unfolds as researchers anticipate, the quiet moments before an incision will carry a slightly different meaning. The room will still hold the gravity of responsibility and the presence of skilled professionals. But there will also be an invisible partner at work, processing data in real time, supporting decisions, and shaping outcomes. And years from now, we may look back on these early demonstrations not as isolated experiments, but as the beginning of a new era in which surgery became a collaboration between human hands and machine intelligence.

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