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A Report on One day Domain Specific Lecture on "AI-Driven Big Data Applications Across Domains: From Healthcare to Smart Cities"

Organized by

Department of Computer Science & Engineering- Artificial Intelligence

Date: 14.11.2025

Report Submitted by: Mr. Raguraman P, Assistant Professor, Department of Computer Science & Engineering - Artificial Intelligence.
Event Coordinators: Mr. M. Vasudevan, Assistant Professor, Department of CSE(AI); Mr. P. Raguraman, Assistant Professor, Department of CSE(AI).
Resource Person Details: Dr. S. Padma, Associate Professor & Head, Department of CSE(AI&ML), MITS Madanapalle.
Venue: 14th November 2025, Seminar Hall-A
Time: 09:00 A.M to 5:00 P.M
Mode of Conduct: Offline
Targeted Audience: B.Tech., CSE(AI) Students
Number of Participants: 210
Report Received on 20.11.2025.

Objectives of the Program:

1. To make the students to understand the Synergy Between Big Data and AI Across Real-World Domains.
2. To learn the Domain-Specific AI-Driven Big Data and its use Cases.
3. To gain familiarity with End-to-End Big Data Architecture and Tools.
4. To develop awareness of Emerging Trends and Responsible AI Practices.

Report Summary:

The One-day Domain Specific Lecture began with an inaugural address by Dr. R. Kalpana, Professor & Head, Department of CSE(AI), who highlighted the significance of Big Data and AI in solving real-world problems.


Dr. P. Ramanathan, Principal, MITS Madanapalle, addressed the event on how Big Data is used for solving real-time problems in medical field, Industries and how to enhance it by combining with AI.

Dr. K. Chokkanathan, Associate Professor, CSE(AI), spoke about the importance of Big Data Analytics, tools and how it is used with AI technologies. Mr. M. Vasudevan, Assistant Professor, CSE(AI), coordinated the event and ensured the smooth execution of the sessions.
The resource person Dr. S. Padma, Associate Professor & Head, CSE(AI&ML), delivered an engaging and technically rich session. The presentation covered how AI and Big Data synergize to enable transformative applications across healthcare, banking, space exploration, and smart manufacturing through end-to-end data pipelines and real-world case studies. It also highlights emerging trends like edge-cloud AI, explainable models, and privacy-preserving learning for responsible innovation.



Students were introduced to understanding of how Big Data and AI work together—from data ingestion (using Kafka/MQTT) and storage (HDFS, MongoDB) to real-time processing (Apache Spark), AI modeling (TensorFlow, MLlib), and visualization (Power BI, Grafana). Through four detailed domain case studies, they see how this pipeline is adapted to solve real-world problems: predicting cardiac events in healthcare, detecting fraud in banking, enabling autonomous operations in space exploration, and implementing predictive maintenance in smart manufacturing.

The lecture also equips them with hands-on awareness of open datasets (like MIMIC-IV, WESAD, OpenAQ) and industry-standard tools, enabling them to design or replicate AI–Big Data projects. Finally, students are introduced to emerging trends—such as edge-cloud AI, federated learning, explainable AI, and synthetic data—preparing them to engage responsibly and innovatively with next-generation AI systems.

Program Outcomes:

1. Students will be able to explain the integrated Big Data & AI pipeline and identify its relevance in domains like healthcare, banking, space exploration, and smart manufacturing.
2. Students will recognize how core AI/ML techniques (e.g., CNNs, LSTM, Random Forest, anomaly detection) are tailored to specific industry challenges and data types.
3. Students will understand the role of each layer in a production-grade AI–Big Data system and be able to map tools to real-world data workflows.
4. Students will appreciate the ethical, technical, and innovative dimensions of deploying AI at scale and be motivated to explore responsible, cutting-edge solutions.

Conclusion:

The One-day Domain Specific Lecture on “AI-Driven Big Data Applications Across Domains: From Healthcare to Smart Cities”, organized by the Department of CSE(AI) with coordination of Department of CSE(AI&ML). The department extends its sincere thanks to Dr. S. Padma, Associate Professor & Head, CSE(AI&ML) for the expert guidance and interactive sessions. The contribution of Dr. R. Kalpana, Dr. K. Chokkanathan, and Mr. M. Vasudevan in facilitating and coordinating the event was instrumental in its success. The workshop effectively enhanced students’ technical understanding and motivated them to explore innovative projects in the domain of Big Data and Artificial Intelligence.