

An Autonomous Institute
Approved by AICTE, New Delhi
Affiliated to VTU, Belagavi
Recognized by UGC under 2(f) & 12(B)
Accredited by NBA & NAAC

Department of Physics Guest Lecture Report

The **Department of Physics** organized a Guest Lecture titled “**Machine learning across Domains: From cosmic signals to environmental insights**” on **13/12/2025** at **10:00 am** in the M.V. Jayaraman Auditorium.



[Dr. Divita Saraogi, Starting the lecture]

A guest lecture titled “Machine learning across Domains: From cosmic signals to environmental insights” was held at the M.V. Jayaraman Auditorium and was attended by ~340 students. The guest introduction was given by Prof. Kavitha. The talk was delivered by Dr Divita Saraogi, Scientist, Picarro India, Bangalore. Dr Divita talked about the basics of data science, Artificial Intelligence, and Machine Learning, and their role in tackling real-world challenges ranging from space exploration to environmental sustainability.

The session ended at 12:00 pm with an interactive Q&A, making the day both inspiring and informative for all participants. Vote of thanks was given by Prof. Kavitha.

An Autonomous Institute
Approved by AICTE, New Delhi
Affiliated to VTU, Belagavi
Recognized by UGC under 2(f) & 12(B)
Accredited by NBA & NAAC



[Students of first year B.E. (CSE Stream) attending the guest lecture]

Objectives of the Event

- The primary objective of the guest lecture was to introduce students to the fundamentals of Data Science, Machine Learning (ML), and Artificial Intelligence (AI),
- To highlight their transformative role in addressing real-world challenges ranging from space exploration to environmental sustainability.
- To emphasise the importance of core science disciplines—Physics, Mathematics, Statistics, Chemistry, and Biology—in building strong foundations for careers in AI-driven engineering and research.
- To promote interdisciplinary learning and engagement between students, researchers, and industry professionals.

Event Overview

The guest lecture organised by the Department of Physics is to provide students with an interdisciplinary perspective on how data-driven approaches are reshaping modern science and engineering. The lecture was delivered by Dr Divita Saraogi, a renowned scientist from Bangalore and an expert in astrophysics. Dr Divita Saraogi began the session by explaining Data Science as the process of transforming data into meaningful insights using scientific methods and computational tools.

Some of the key points of the talk were;

- Fundamentals of Data Science and its role in decision-making.
- Basics of Machine Learning, its working pipeline, and major types (supervised, unsupervised, and reinforcement learning).
- Understanding Artificial Intelligence and its distinction from Machine Learning.
- Real-world case studies including AI-based flood prediction in Kerala, wildlife conservation through ML-based tiger identification, forest fire detection from space, cancer detection,

An Autonomous Institute
Approved by AICTE, New Delhi
Affiliated to VTU, Belagavi
Recognized by UGC under 2(f) & 12(B)
Accredited by NBA & NAAC

autonomous vehicles, and exoplanet discovery.

- The growing impact of AI and ML across various engineering disciplines such as Mechanical, Civil, ECE, Computer Science, Environmental, and Biomedical Engineering.



[Dr. Divita discussing on the role of ML in space exploration]

Machine Learning: Described as the backbone of modern AI systems. Dr Saraogi elaborated on how machines learn patterns from data instead of being explicitly programmed.

- The concept of Artificial Intelligence was then explored, highlighting its ability to simulate human-like intelligence such as learning, reasoning, and decision-making. The distinction between AI and ML was clearly emphasised to avoid common misconceptions. Different levels of AI, namely Narrow AI, General AI, and Superintelligent AI, were discussed to provide students with a broader understanding of current capabilities and future possibilities.

An Autonomous Institute
Approved by AICTE, New Delhi
Affiliated to VTU, Belagavi
Recognized by UGC under 2(f) & 12(B)
Accredited by NBA & NAAC



[Students actively participating in the quiz conducted by Dr. Divita on AI & ML]

· Dr Divita emphasised how a strong foundation in basic sciences plays a crucial role in developing problem-solving skills and highlighted that students should focus on these fundamentals to excel in their engineering careers. She illustrated, through real-life examples, how Physics, Mathematics, Chemistry, and Biology help identify real-world problems and form the foundation for advanced technologies such as Artificial Intelligence and Machine Learning.

Outcomes and Impact

- Students gained a clear conceptual understanding of Data Science, Machine Learning, and Artificial Intelligence.
- The lecture helped demystify AI by presenting it as a logical, science-driven tool rather than a black-box technology.
- Learners understood the relevance of core science subjects in building, debugging, and innovating AI systems.
- Students were exposed to diverse real-world applications of AI and ML, enhancing their awareness of interdisciplinary career opportunities.
- The interactive quiz and examples improved student engagement and curiosity towards emerging technologies.

Conclusions

The guest lecture by Dr. Divita Saraogi was highly informative and insightful. It successfully connected theoretical foundations with practical applications, reinforcing the idea that AI and ML are powerful tools driven by scientific reasoning. The event enriched the academic environment and motivated students to explore data science and AI as integral components of their engineering and scientific careers.



An Autonomous Institute
Approved by AICTE, New Delhi
Affiliated to VTU, Belagavi
Recognized by UGC under 2(f) & 12(B)
Accredited by NBA & NAAC

Report by:

Dr. Reshmi Varma

Assistant Professor,

Department of Physics,

MVJ College of Engineering, Bangalore