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Chairman

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Faculty Mentors

1. Prof. P. K. Singh, MMMUT, Gorakhpur, India
2. Dr. Meenu, CSED, MMMUT, Gorakhpur, India
3. Dr. Birendra Kumar Sharma, CSED, MMMUT, Gorakhpur, India
4. Dr. Shailendra Pratap Singh, CSED, MMMUT, Gorakhpur, India
5. Dr. Ritesh Maurya, CSED, MMMUT, Gorakhpur, India
6. Dr. Lokendra Singh Umrao, CSED, MMMUT, Gorakhpur,

About University

Madan Mohan Malaviya University of Technology, Gorakhpur, was established in 2013 by the Government of Uttar Pradesh in the form of a non-affiliating technical University after reconstituting the Madan Mohan Malaviya Engineering College, Gorakhpur, which was established in 1962. In addition to UG in Civil Engineering, Chemical Engineering, Computer Science & Engineering, Mechanical Engineering, Electrical Engineering, Electronics & Communication Engineering, Information Technology, the University also offers B.Pharma, BBA, MBA, MCA, M. Tech, M.Sc., and Ph.D. courses in various specializations.

About the Department

The Department of CSE offers one UG, one PG (specialisations in CSE), and a PhD program. The Department has qualified and dedicated faculty members along with state-of-the-art lab facilities. This department was established in 1984, and with time it has earned recognition as one of the top Computer Science & Engineering. programs in the UP.

Faculty Development Program On Process-centric and Reward-based Interpretable Models in Explainable AI (PRIMEAI-2025)

December 23rd to 30th, 2025 (Hybrid Mode)

Organized by
Department of
Computer Science & Engineering

MADAN MOHAN MALAVIYA UNIVERSITY OF TECHNOLOGY

DEORIA ROAD, GORAKHPUR-273010 (UP) INDIA
(U.P. Govt. Technical University)
NAAC Grade 'A' University
NIRF Ranking: 60th in Engineering

Tentative List of Speakers

- Prof. Rakesh Kumar – Professor and Head, MMMUT Gorakhpur
- Prof. Satish Kumar Singh –Professor, IIIT Allahabad
- Nagendra Sharma, Leader, Google Cloud Platform(GCP)
- Venkat Desai, Sr. Specialist at Microsoft, Japan
- Dr Sandeep Singh Sengar, Sr. Lecturer, Cardiff School of Technologies
- Dr. Shivram Dubey – Associate Professor, Dept. of IT, IIIT Allahabad
- Dr. S.P Yadav - Associate Professor, Dept. of CSE, MMMUT Gorakhpur
- Dr. Rohit Kumar Tiwari, Assistant Professor, MMMUT Gorakhpur
- Dr. Nayaneesh Kumar Mishra, CEO, N-Code Sutram
- Dr. Sumit Kumar, Assistant Professor, MMMUT Gorakhpur

ABOUT THE FDP

Process-centric and Reward-based Interpretable Models in Explainable AI, combined with a nine-session Faculty Development Program (FDP) called Process Reward Interpretability Model with Explainable AI (PRIMEAI-2025), aims to provide participants with a thorough understanding of Machine Learning (ML), Deep Learning (DL), and Explainable AI (XAI). The program's primary objective is to equip participants with the skills and knowledge necessary to develop transparent, responsible, and reliable AI models.

With the rising complexity of modern AI systems, particularly deep neural networks and large-scale machine learning models, they are often used as "black boxes," making it challenging to comprehend decision-making processes, validate results, identify biases, or ensure alignment with desired objectives. By combining explainable AI frameworks with cutting-edge ML/DL architectures and placing a strong emphasis on process-based reward interpretability, this FDP tackles these issues.
Participants will investigate feature attribution, post-hoc and intrinsic explanation strategies, global and local interpretability approaches, and visualisation tools. The course also covers human-in-the-loop interpretability, reward modelling in reinforcement learning, and practical applications in autonomous systems, healthcare, and finance. By the end of the FDP, participants will have gained practical experience in using PRIMEAI frameworks to enhance AI system decision-making, promote ethical AI practices, and increase model transparency.

Key Highlights

- Foundations of Machine Learning, Deep Learning, and Explainable AI.
- Core ML algorithms, feature engineering, and model evaluation metrics.
- Interpretability in neural networks: perceptrons, MLPs, embeddings, and attention mechanisms.
- Deep learning interpretability methods: CNN visualizations, Grad-CAM, RNN/LSTM temporal mapping, and transformer attention analysis.
- Feature attribution techniques: Saliency, Integrated Gradients, DeepLIFT, SHAP, LIME, and PRIMEAI approaches.
- Reward modelling in reinforcement learning and challenges of reward misalignment.
- Advanced topics: GANs, LLMs, Transformers, Multi-agent RL, and ethical/responsible AI practices.
- Human-in-the-loop interpretability and interactive visualization.
- Applications of PRIMEAI in healthcare, finance, and autonomous systems.
- Future research directions: causal inference, counterfactual reasoning, and extending interpretability to foundation models.

General Guidelines

- **Registration:** Online registration.
- **Mode of Participation:** Registration is open for both online and offline participants. Online attendees should ensure a stable internet connection.
- **Code of Conduct:** Maintain professionalism; respect speakers and peers; mobile phones on silent.
- **Hands-on & Assignments:** Participate actively in exercises and complete tasks promptly.
- **Networking:** Collaborate and share knowledge with peers and experts.
- **Valedictory & Feedback:** Attend final session and submit feedback forms.

Registration Details and Eligible Candidates

- ***Registration Fee:-*** *250/- For MMMUT Affiliation and online candidates.*
- *1000/- Outside Candidates in Offline Mode*
- ***Eligible candidates****: Faculty Members/Postgraduate students/Research scholars/Industry Professionals*

Website Link:- https://mmmut.ac.in/primeai/
Registration Link:- https://mmmut.samarth.edu.in/feeportal/index.php/fee/fee_payment-miscellaneous/register

Tentative Schedule of the FDP “Process-centric and Reward-based Interpretable Models in Explainable AI”

Day 1 (23-12-2025)	Day 2 (24-12-2025)	Day 3 (26-12-2025)	Day 4 (27-12-2025)	Day 5 (29-12-2025)	Day 6 (30-12-2025)
9:30 AM to 10:30 PM	**11:00 AM to 1:00 PM**	**11:00 AM to 1:00 PM**	**11:00 AM to 1:00 PM**	**11:00 AM to 1:00 PM**	**11:00 am to 1:00 PM**
Inaugural Session followed by High TEA and Interaction	**Session 3**	**Session 5**	**Session 7**	**Session 9**	**Session 11**
10:30 AM to 12:30 PM **Session 1** **Topic: Foundations of ML/DL and Explainable AI** **Expert:** Prof. Satish Kumar Singh **Designation & Organization:** Professor, IIIT Allahabad	**Topic: Interpretability in ML Models** **Expert:** Dr Sandeep Singh Sengar **Designation & Organization:** Sr. Lecturer, Cardiff School of Technologies	**Topic:- Neural Network Fundamentals & Interpretability** **Expert:** Prof. Rakesh Kumar **Designation & Organization:** Professor, MMMUT Gorakhpur	**Topic: Feature Attribution Methods in DL** **Expert:** Dr Nayaneesh Kumar Mishra **Designation & Organization:** Director, N-Code Sutram	**Topic:- Human-in-the-Loop Interpretability** **Expert:** Venkat Desai, **Designation & Organization:** Sr. Specialist at Microsoft, Japan	**Topic: Future Directions and Research Opportunities** **Expert:** Dr. Rohit Kumar Tiwari **Designation & Organization:** Assistant Professor, MMMUT Gorakhpur
3:00 PM to 5:00 PM	**3:00 PM to 5:00 PM**	**3:00 PM to 5:00 PM**	**3:00 PM to 5:00 PM**	**3:00 PM to 5:00 PM**	**1 PM to 6 PM**
Session 2	**Session 4**	**Session 6**	**Session 8**	**Session 10**	
Topic Core ML Algorithms & Feature Engineering **Expert:** Dr.Sumit Kumar **Designation & Organization:** Assistant Professor, MMMUT Gorakhpur	**Topic: Reward Modelling in ML and Reinforcement Learning** **Expert:** Dr. Satya Prakash Yadav **Designation & Organization:** Associate Professor, MMMUT Gorakhpur	**Topic: Deep Learning Interpretability Techniques** **Expert:** Dr Shivram Dubey **Designation & Organization:** Associate Professor, IIIT Allahabad	**Topic:- Advanced Deep Learning & Emerging Techniques** **Expert:** Dr Shivram Dubey **Designation & Organization:** Associate Professor, IIIT Allahabad	**Topic:- Applications of PRIMEAI in ML/DL** **Expert:** Nagendra Sharma **Designation & Organization:** Leader Google Cloud Platform(GCP) | Field CTO & Chief Architect | Applications, Data & Cloud Innovation | GenAI & Advanced Analytics Expertise | Driving Innovative Scalable Tech Solutions	Valedictory Session followed by High Tea