G.S. Mandal's
Maharashtra Institute of Technology,
Chhtrapati Sambhajinagar
Department of Emerging Science & Technology

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1. **Event Date:** 14 - 19th Oct 2024
2. **Event: -** Workshop on GenAI and LLM
3. **Speaker at the Event:** Mr. Praveen Andhale

Objectives: AI Innovations and Cloud Computing: Leveraging OpenShift for Scalable AI Solutions.

Gist of the event:

A six-day workshop on Generative AI and Large Language Models was conducted by speaker Praveen Andhale, from October 14 to 19, 2024, organized by the Emerging Science and Technology Department of Maharashtra Institute of Technology, Chhatrapati Sambhajinagar. The workshop aimed to provide an in-depth understanding of key concepts in Artificial Intelligence (AI), Machine Learning (ML), and Deep Learning (DL), with a focus on generative models.

Throughout the workshop, Praveen Andhale covered a range of foundational topics, beginning with an introduction to AI, its evolution, and its applications across industries. This was followed by a detailed discussion on Machine Learning and Deep Learning, emphasizing the distinction between traditional machine learning algorithms and advanced deep learning architectures. The focus then shifted towards Generative AI, which was introduced as a powerful field capable of creating new content, from text to images, with examples of its use in content generation and design.

A significant portion of the workshop was dedicated to Generative Adversarial Networks (GANs), including their core structure—comprising generator and discriminator networks—and variations such as Deep Convolutional GANs (DCGAN) and Conditional GANs (CGAN). These models were explored through practical applications like image synthesis and style transfer. Praveen also delved into Variational Autoencoders (VAEs), explaining how they differ from GANs by focusing on the representation of latent spaces in generating new data.

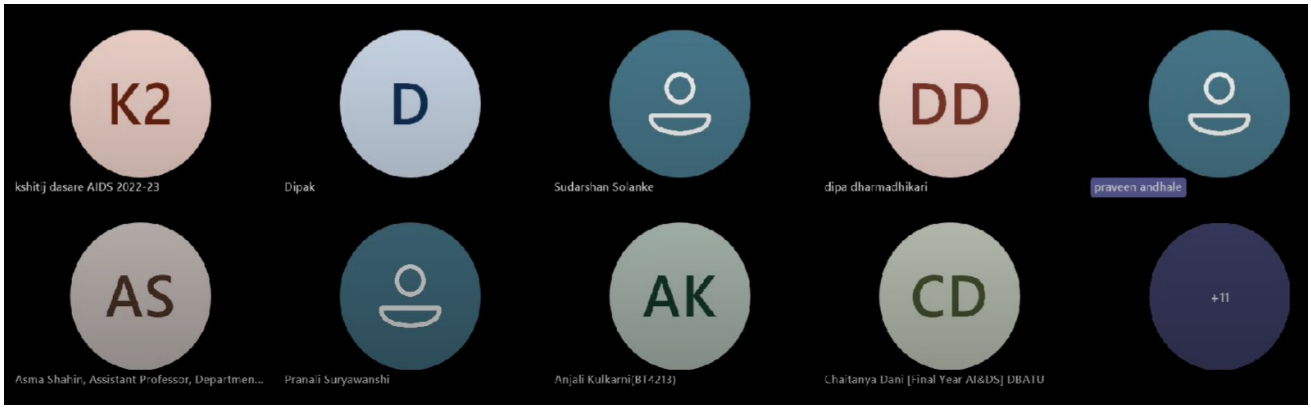
A major highlight of the workshop was the introduction to Transformers, which have revolutionized Natural Language Processing (NLP). The speaker explained the transformer

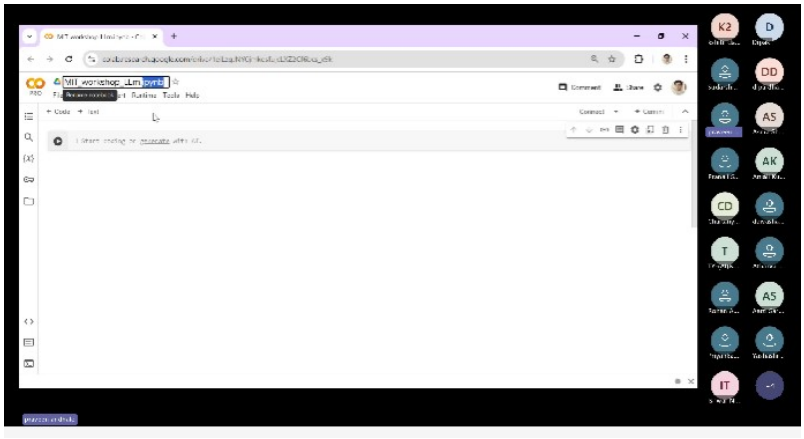
architecture and its attention mechanisms, showing how transformers power modern Large Language Models (LLMs) like GPT. An essential part of the discussion was Prompt Engineering, where participants learned to create effective prompts to interact with LLMs, along with more advanced techniques for improving responses from models like GPT and Mistral.ai.

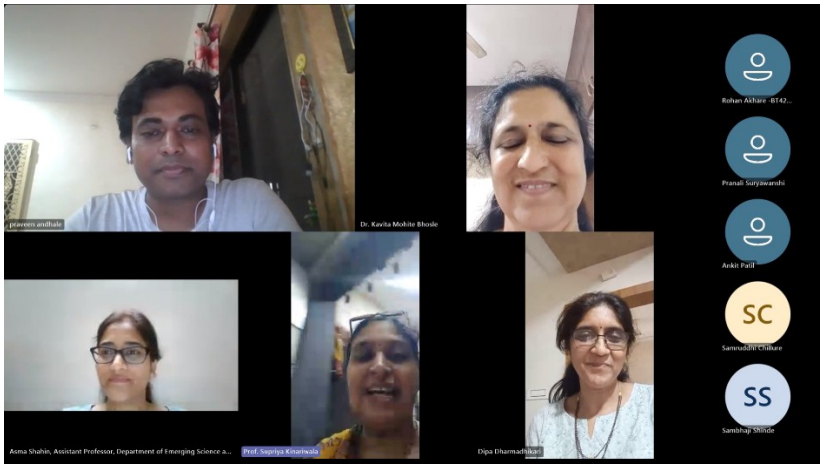
Practical learning was emphasized throughout the workshop with hands-on sessions using Google Collab. Participants had the opportunity to implement and experiment with various AI models, such as building simple neural networks, training GANs for image generation, and working with transformer models for text generation. This hands-on approach allowed students to bridge theory with practice and gave them a solid foundation in model development.

In addition to the sessions, Praveen Andhale shared valuable resources to encourage further learning. He introduced participants to platforms like Hugging Face for pre-trained models and datasets, Ask on Data for community-driven Q&A on generative AI topics, and Mistral.ai for advanced experiments in language models and prompt engineering. These resources were aimed at helping students continue their exploration of AI beyond the workshop.

Overall, the six-day workshop provided a comprehensive understanding of Generative AI and Large Language Models, blending theoretical insights with hands-on practical sessions. By the end of the workshop, participants had gained a thorough understanding of neural networks, GANs, VAEs, and transformers, and were equipped with the tools to build and fine-tune their own AI models. The resources shared further empowered students to continue developing their knowledge and skills in this rapidly evolving field.



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Ankit Patil
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Sambhaji Shinde
Asma Shahin, Assistant Professor, Department of Emerging Science a...
Prof. Supriya Kinariwala
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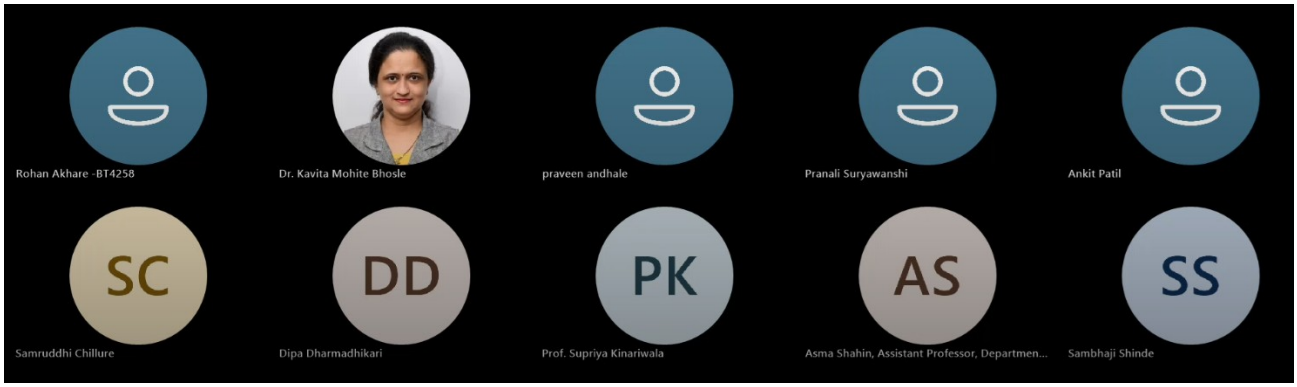
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