CHARUSAT
CHAROTAR UNIVERSITY OF SCIENCE AND TECHNOLOGY

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Faculty of Technology and Engineering

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Date:06/11/2024

Event Application No in E-governance: 2024-25/19455
Event Name: Deep Learning Demystified: Concepts, Applications and Innovations
Date: 18/10/2024- 19/10/2024
Venue: CE, CSPIT.

1. Speaker Profile

Manav Vashi is a forward-thinking data science and AI enthusiast with hands-on experience in machine learning and deep learning technologies. Skilled in Python, computer vision, and OpenCV, he has successfully implemented ML models and participated in multiple hackathons, showcasing his problem-solving abilities in real-world scenarios. Manav's projects highlight his expertise in predictive analytics, data preprocessing, and model optimization, reflecting his commitment to innovation and practical application. With a strong foundation in mathematics and programming, he is passionate about advancing his skills and contributing to impactful AI solutions in collaborative environments.

Smit Gandhi is a proactive and innovative tech enthusiast with a keen interest in AI, ML, and data science. He has hands-on experience with projects in machine learning, particularly in healthcare, where he has developed solutions like Dosehack to optimize drug dosage recommendations and enhance patient safety. With strong skills in Python, TensorFlow, and data analytics, Smit is dedicated to applying AI for meaningful impact. His projects demonstrate both technical expertise and a commitment to responsible AI. Smit actively shares his insights and collaborates on platforms like GitHub, aiming to contribute to advancements in AI and healthcare technology.

Prachi Desai is a dedicated AI and computer vision enthusiast with experience in using OpenCV for image processing and machine learning applications. Her expertise includes developing solutions in object tracking, face detection, and visual data analysis, showcasing her strong foundation in computer vision. Prachi has demonstrated her skills in multiple projects, blending technical proficiency with a commitment

to innovation. Her hands-on approach and passion for visual computing make her a valuable asset in the AI and technology space, where she aims to further her impact by applying her knowledge to solve real-world challenges effectively.

2. Workshop Activities and Description

The event began with a foundational overview, defining key terms to set the context for the presentations and discussions that followed:

- **Artificial Intelligence (AI)**: AI refers to the simulation of human intelligence in machines that are designed to perform tasks such as problem-solving, learning, and decision-making.
- **Machine Learning (ML)**: ML, a subset of AI, focuses on enabling machines to learn from data patterns and make predictions or decisions with minimal human intervention.
- **Deep Learning (DL)**: DL is a specialized branch of ML that uses neural networks with multiple layers (or "depths") to analyze complex data sets, especially for image and language processing.

A brief history of AI, ML, and DL provided context on the evolution of these fields:

- **Early AI (1950s-1980s)**: AI research focused on symbolic reasoning, logic, and early algorithms but faced limitations due to computing power and data scarcity.
- **Emergence of ML (1980s-2000s)**: Machine learning gained momentum with the development of algorithms that could learn from data, such as decision trees, k-nearest neighbors, and support vector machines.
- **Rise of DL (2000s-Present)**: With advancements in hardware and data availability, deep learning emerged as a powerful tool, leading to breakthroughs in fields like image recognition, natural language processing, and autonomous systems.

The event emphasized the importance of **Responsible AI**, focusing on the ethical, fair, and transparent development and deployment of AI systems. This includes:

- **Ethics in AI**: Ensuring AI respects privacy, fairness, and does not propagate biases.
- **Transparency and Explainability**: Building AI systems whose decision-making processes can be explained and understood by users.
- **Regulatory Compliance**: Ensuring AI systems align with legal frameworks and societal expectations to protect users' rights and well-being.

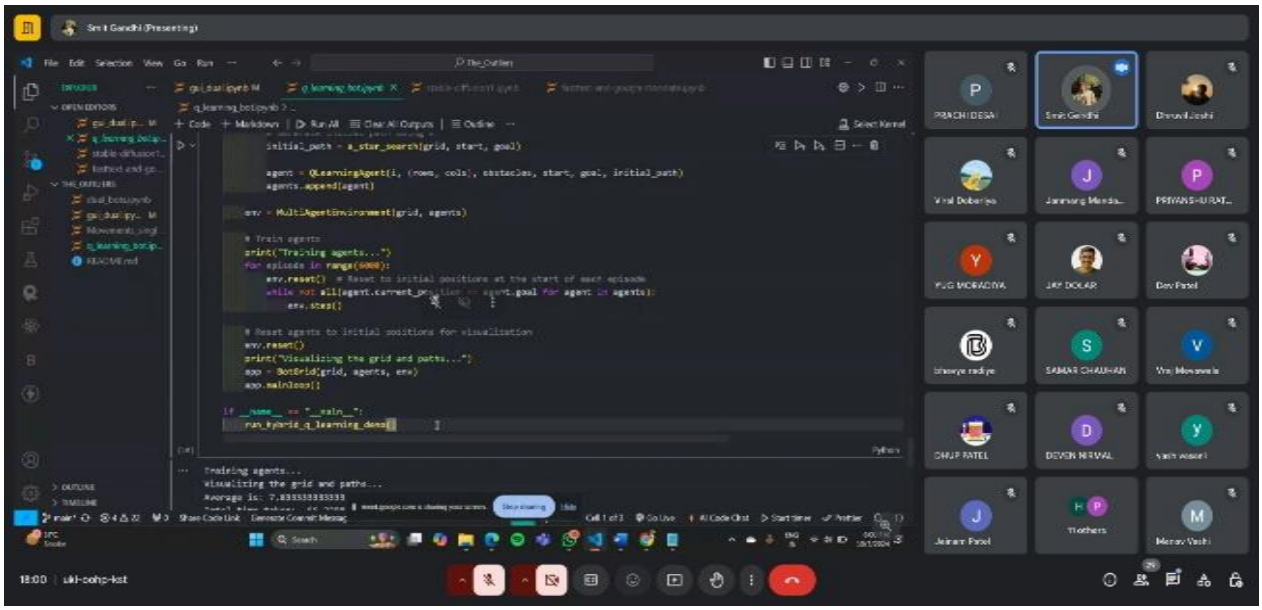
Presentation Highlights

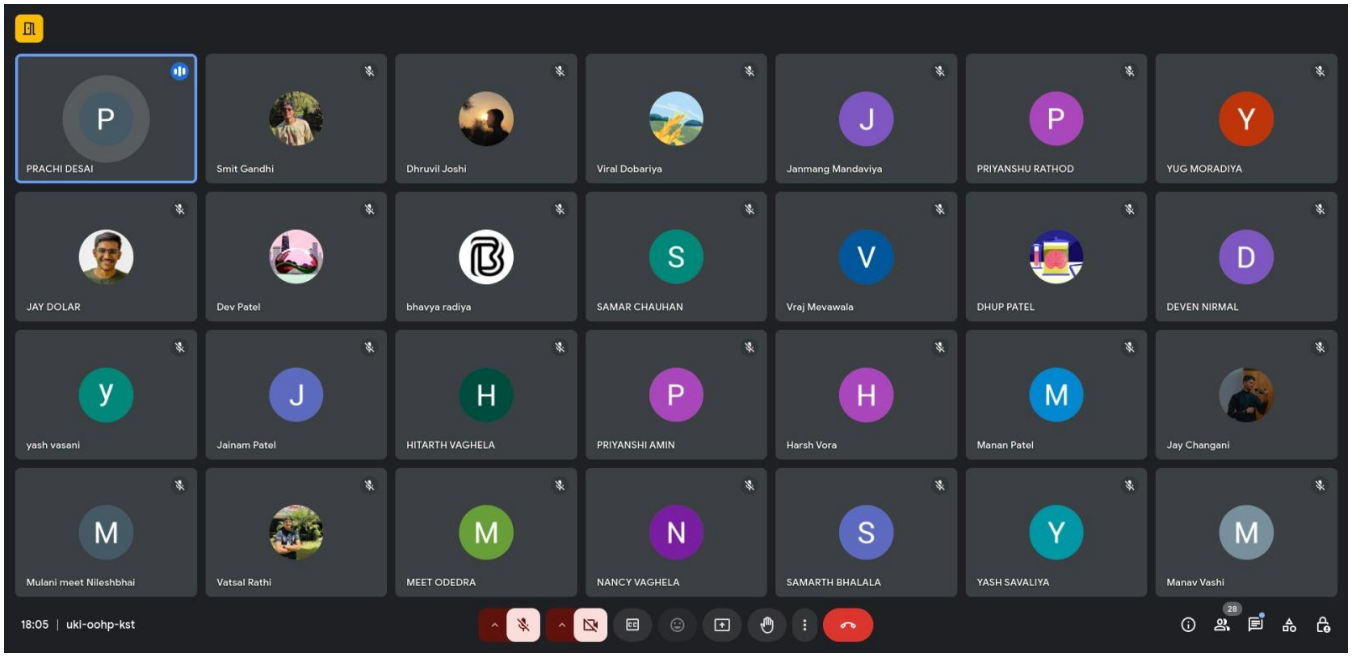
1. **Smit's Project – Dosehack**: Smit introduced his innovative project, Dosehack, which leverages AI to address issues in healthcare and medication management. His project focused on automating drug dose recommendations and enhancing patient safety. Smit demonstrated how his project integrates AI for real-time monitoring and decision support.
2. **Prachi's Work with OpenCV**: Prachi presented her work using OpenCV, a popular open-source library for computer vision applications. Her project showcased how image processing can be enhanced using OpenCV's tools, with applications in areas like face detection, object tracking,

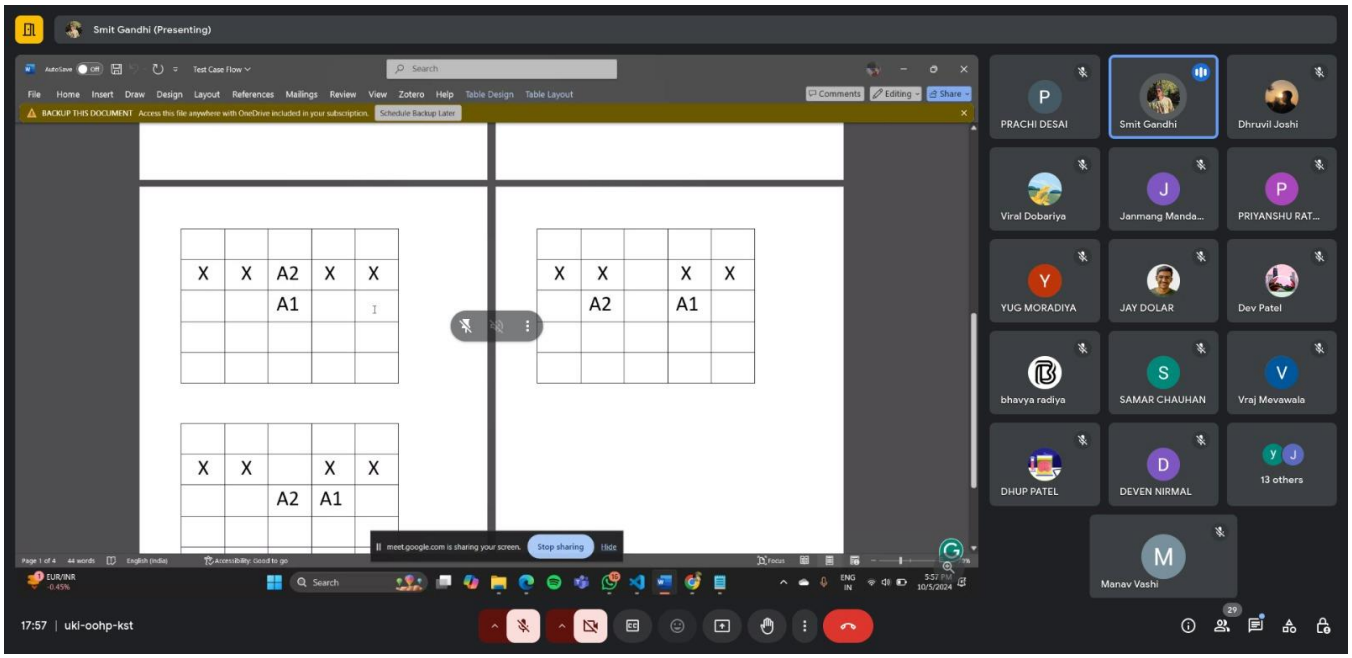
and edge detection. Prachi's presentation emphasized OpenCV's accessibility for beginners and its potential for complex visual tasks.

3. **Manav's Bangalore Hackathon Project**: Manav represented his project from the recent Bangalore hackathon, a machine learning demo aimed at explaining the interplay between ML and DL concepts. He highlighted ML's foundational role in building complex deep learning models and demonstrated a practical application that utilized ML algorithms for predictive analytics. Manav emphasized the importance of ML as a base for understanding and optimizing DL networks, reinforcing the critical skillset for aspiring AI practitioners.

3. Photos







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