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Guest lecture organized by the

Department of Electronics and Communication Engineering

Report on the session

"Application of deep learning for speech and audio processing"

A one-day session on **"Application of deep learning for speech and audio processing"** was organized by the ECE Department on 15th October 2024. The Session received an overwhelming response, with 340 participants.

ABOUT THE SESSION

The session started at 10.30 AM with 340 participants, focussing on Fundamentals and Applications deep learning.

Session (15.10.2024): Inauguration Ceremony and FN Session

The session began with Sandhya Bhat, Rachitha, 5th Semester ECE student welcoming the guest and gathering. The chief guest of the session was Dr. JAYESH M K, Senior Chief Engineer, Samsung R&D, Bengaluru, Karnataka, India. Ms Sandhya Bhat, 5th Sem ECE student welcomed the guest Dr. JAYESH M K, Dr. Umamaheswaran, Principal, Dr. Srinivas L Gombi, Dean Academic, Dr. Niranjanappa, Dean Research, and Dr. Shima Ramesh Maniyath, HoD-ECE, MVJCE. Ms. Rachitha, 5th Sem ECE student introduced the chief guest. As a token of appreciation, flower bouquet was presented to chief guest by Dr. Umamaheswaran, Principal, MVJCE. Followed by the introduction the session was continued by the chief guest. The topic of discussion was Intelligent Reflecting Surfaces: Fundamentals and Applications Towards 6G Wireless Networks. Dr. JAYESH M K connected very well with the audience.

Deep learning has revolutionized many aspects of speech and audio processing by enabling the development of more accurate and efficient systems.

CNNs: Used for feature extraction from spectrograms (time-frequency representations of audio).

RNNs/LSTMs: Handle sequential data and temporal patterns in audio, ideal for ASR and emotion recognition.

Transformers: Modern architectures like **Conformer** and **Wav2Vec** have revolutionized speech processing tasks with attention mechanisms.

GANs: Generate realistic audio and enhance noisy audio signals.

End-to-End Deep Learning: Many modern audio and speech systems use end-to-end frameworks that learn directly from raw waveforms without hand-crafted features.

Deep learning has had a transformative impact on speech and audio processing, enabling systems that are more accurate, adaptable, and efficient. These technologies are now an integral part of everyday applications such as voice assistants, real-time communication tools, media creation, and security systems.

The Session ended at 12.45 PM.

Dr. Umamaheswaran Presenting bouquet of flowers to the guest Dr. Jayesh M K.

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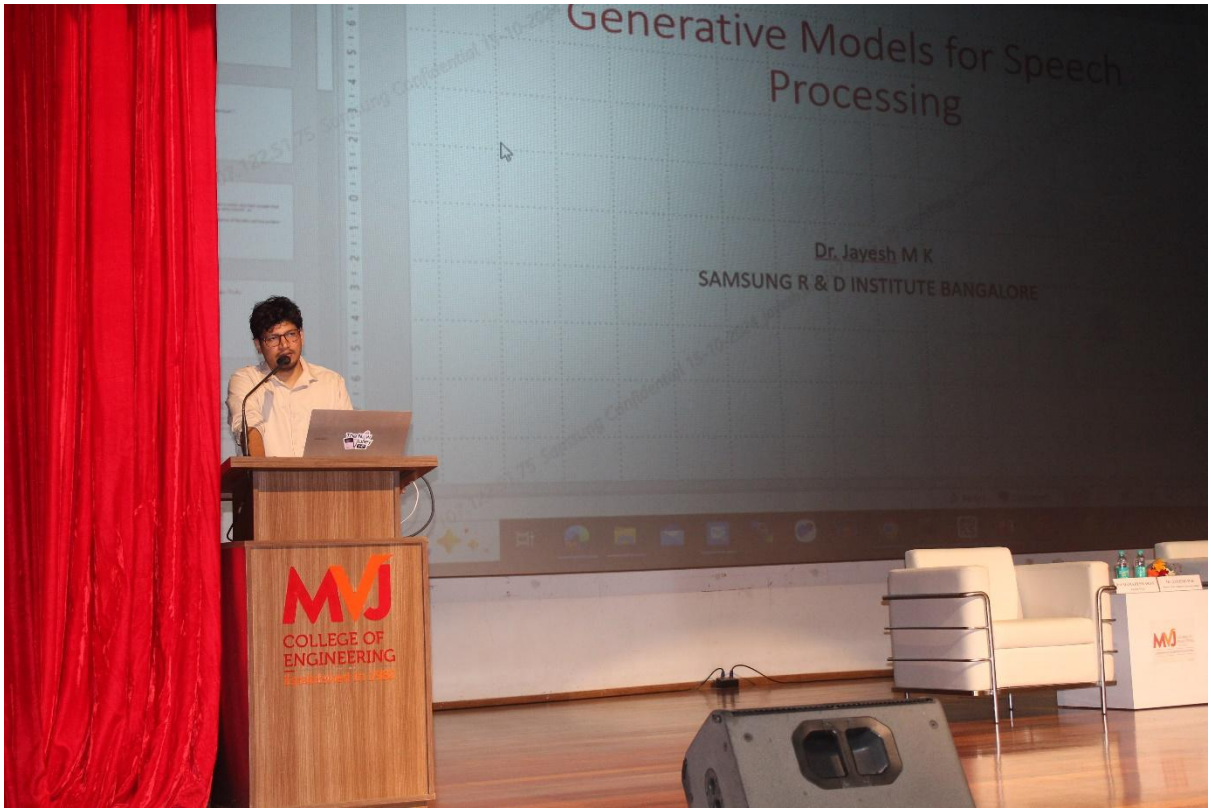
Dr. Umamaheshwaran, MVJCE welcoming the guest.



Chief Guest Dr. JAYESH M K delivering the insights of Application of deep learning for speech and audio processing.

Participants attending the Guest Lecture

Outcomes:

1. Attendees gained insights into emerging trends Deep learning and models.
2. The participants gained various tools used in video and audio processing.