Report on
Five days Virtual Faculty Development Programme
on
Emerging Trends in Machine Learning and Deep Learning Techniques
from 02.01.2023 to 06.01.2023

Submitted by: Dr. S. Jansi, Assistant Professor, Department of Computer Applications.

REPORT RECEIVED ON 30.01.2023

Convenors:
Dr. S. Jansi, Assistant Professor in MCA
Dr. C. Sivaraj, Assistant Professor in MCA

Total Number of Participants: 154

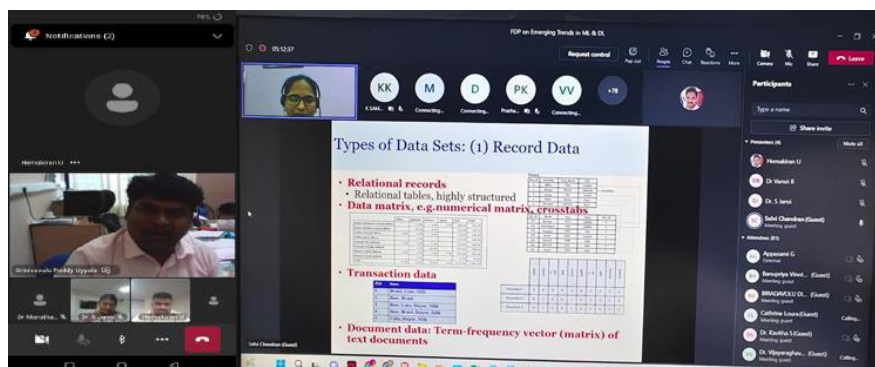**Mode of Delivery:** Online Mode through Microsoft Teams

The Programme started at 10 AM with a welcome address by Dr. S.Jansi, Assistant Professor, Department of Computer Applications, MITS. The presidential address was delivered by Dr P Ramanathan, Vice Principal Academics, MITS. The introductory address was delivered by Dr. N. Naveen Kumar, Associate Professor and Head, Department of Computer Applications, MITS. He highlighted FDP resource persons from various eminent institutions and participants from various states of the nation as well as one from foreign country also. Then the morning session was taken over by the resource persons introduced by Dr. S. Jansi, Assistant Professor.

Day 1: 02.01.23 (Monday)

Resource Person: Dr. U. Srinivasulu Reddy, Associate Professor in CSE, NIT- Thiruchirapalli.
Topic: Introduction to Machine Learning
The resource person started the session at 10.30 AM by extended his thanks to the Management, Principal, HoD, Organizers. He explained about the role of Artificial Intelligence Techniques, Machine learning algorithms, real time examples of AI and ML techniques, Issues in ML and Introduction about deep learning. Finally, the session was concluded with an effective Q&A with the participants.

Resource Person: Dr. C. Selvi, Assistant Professor in CSE, IIIT, Kottayam
Topic: Data Preprocessing Techniques
The resource person started the session at 2.30 PM and she explained about the types of datasets, statistical description of data, central tendency, variability and data visualization. And also she given the demo session by using python. Finally, the session was concluded with Q&A with the participants.

Day 2: 03.01.23 (Tuesday)

Resource Person: Dr. Surendiran, Associate Professor in CSE, NIT- Puducherry
Topic: Dimensionality Reduction for Medical Imaging
The morning session was taken over by the resource person introduced by Dr. S. Jansi, Assistant Professor. The resource person started the session at 10.30 AM. He explained about the dimensionality reduction methods and applications, Demo with Iris dataset by using weka tool and real time example in feature selection/feature extraction methods for mammogram dataset. Finally, the session was concluded with Q&A with the participants.

Resource Person: Dr. Jitendra Kumar Rout, Assistant Professor in CSE, NIT, Raipur.
Topic: Classification and Regression Techniques
The afternoon session was taken over by the resource person introduced by Dr. C. Sivaraj, Assistant Professor. The resource person started the session at 2.30 PM. He delivered the lecture about various types of classification, regression algorithms and the parameters used for evaluation of algorithms. Finally, the session was concluded with Q&A with the participants.

Day 3: 04.01.23 (Wednesday)

Resource Person: Dr. J. Praveen Kumar, Post-Doctoral Research Associate, Singapore - MIT Alliance for Research and Technology, Singapore.
Topic: Machine Learning in Agriculture
The morning session was taken over by the resource person introduced by Dr. S. Jansi, Assistant Professor. The resource person started the session at 10.30 AM. He delivered the DCT method, region growing method and deep learning based leaf counting image analysis and segmentation in Agriculture.
Finally, the session was concluded with Q&A with the participants.

Resource Person: Dr. Nandhini Kumaresan, Assistant Professor in CSE, CU, Thiruvarur
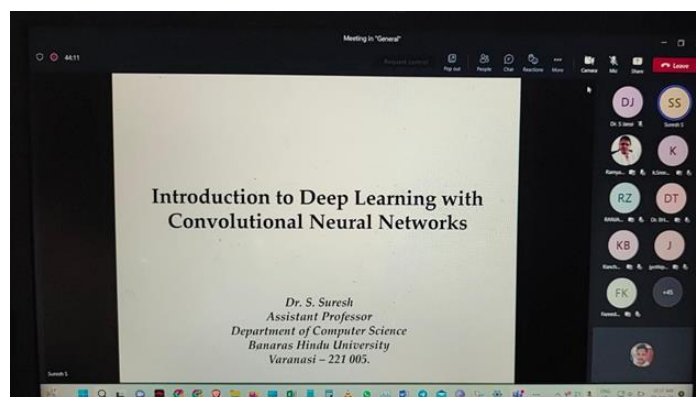**Topic: Natural Language Processing using ML**
The afternoon session was taken over by the resource person introduced by Dr. C. Sivaraj, Assistant Professor. The resource person started the session at 2.30 PM. She explained about NLP, NLP components, NLP real time Applications and displayed some videos about NLP applications. Finally, the session was concluded with Q&A with the participants.

Day 4: 05.01.23 (Thursday)

Resource Person: Dr. S. Suresh, Assistant Professor in CSE, Banaras Hindu University, Varanasi
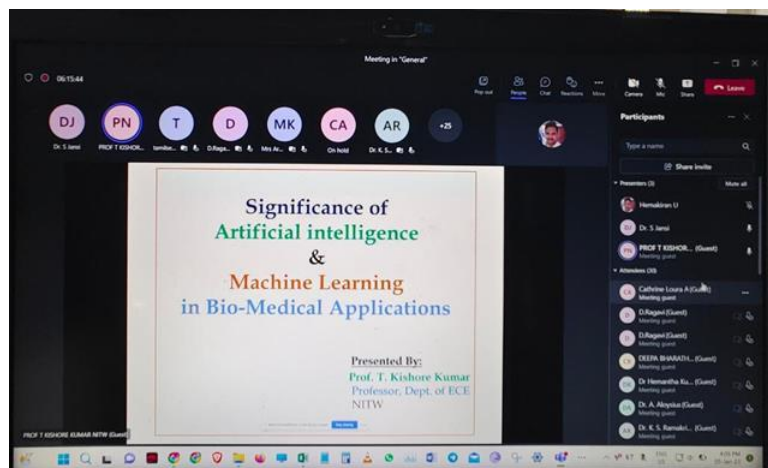**Topic: Introduction to deep learning with CNN**
The morning session was taken over by the resource person introduced by Dr. S. Jansi, Assistant Professor. The resource person started the session at 10.30 AM. He explained about ML basics, Introduction to deep learning, elements of NNs, activation functions available in NNs, training the NNs and the architecture of CNN and recurrent NNs with human activity recognition example. Finally, the session was concluded with Q&A with the participants.

Resource Person: Dr. T. Kishore Kumar, Professor in ECE, NIT, Warangal
Topic: Deep Learning in Health care applications
The afternoon session was taken over by the resource person introduced by Dr. S. Jansi, Assistant Professor. The resource person started the session at 2.30 PM. He delivered the various Artificial intelligence and machine learning algorithms for bio-medical applications with real time dataset. Finally, the session was concluded with Q&A with the participants.

Day 5: 06.01.23 (Friday)

Resource Person: Dr. A. Kaja Mohideen, Assistant Professor in Applied Mathematics and Computational Sciences, PSG college of technology, Coimbatore.
Topic: Medical Image Analysis using Deep Learning

The morning session was taken over by the resource person introduced by Dr. S. Jansi, Assistant Professor. The resource person started the session at 10.30 AM. He explained about Need for ML in medical imaging, Classification, Segmentation, detection techniques, types of medical imaging scans applied in CNN, U-Net architecture, transfer learning, RNN and medical imaging datasets for ML & DL. Finally, the session was concluded with Q&A with the participants.

The valedictory talk was given by Dr N. Naveen Kumar Associate Professor and Head, MCA. The summary of FDP about the resource persons and participants was given by Dr. S. Jansi, Assistant Professor. The positive feedback was given by participants during this programme. Finally the session was concluded by vote of thanks delivered by Dr C. Sivaraj, Assistant Professor. He extended his thanks to the Management, Principal, HoD, colleagues, all resource persons, participants and technical coordinator for the successful completion of the event.

Summary of FDP:

Total number of Participants: 154
Foreign participants: 01

1. Ghana: 01

Indian Participants: 153

- Tamil Nadu: 78
- Andhra Pradesh: 46
- Karnataka: 19
- Telangana: 03
- Kerala: 02
- Madhya Pradesh: 02
- Maharashtra: 02
- Puducherry: 01