Koneru Lakshmaiah Education Foundation



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Report of A five day FDP

on

RESEARCH AND INDUSTRY ORIENTED PIPELINES FOR CONSTRUCTING ML APPLICATIONS

20th-24th September, 2022.

Organized by Signal Processing Research Group

Department of ECE, KLEF

Signal Processing Research Group has conducted a five days faculty development programme to strengthen the faculty in the deep learning domain. The main focus of this FDP is to provide a hand on sessions for the faculty to educate on futuristic directions of vision computing and biomechanics research area.. Five eminent resource persons were delivered the sessions. We have received a total of 100 registrations for this FDP from all over the country. Among all the registrations we have 49 active participants for this FDP and the certificates were issued to all the active participants (>80% attendance). The detailed report of all the sessions is as follows.

Day-1 Session-1: (20/09/2022)

The session was started at 10AM with inauguration followed by the welcome speech by the conveners. The session was handed over to the resource person Dr. M. Vinod Kumar, Associate Professor, Bapatla Engineering College. The session topic is 'Train Rolling stock examination Assistant: A Computer vision approach to Manual rolling stock examination'.

Hands-on session was taken by the resource person. He guided the participants to install anaconda and the required packages. He explained how to program with tensorflow. He taught how to create a neural network model in python.

Day-1 Session-2: (20/09/2022)

The session-2 was taken again by Dr. M. Vinod Kumar, Associate Professor, Bapatla Engineering College, and the topic is 'The VGG 16 Network'. He explained the basic CNN architecture i.e. VGG 16. A brief introduction to deep learning architectures was given for the 30 minutes and then he taken hand-on. All the participants were actively participated and created their first VGG model for object recognition task.

Day-2 Session-3: (21/09/2022)

The session-3 was taken by the Dr. D. Anil Kumar, on the topic 'Natural Language Processing in Tensorflow'. A brief introduction to NLP was given and the application areas were discussed in depth. Later a Hands-on session was taken by the resource person and he showed how to implement text recognition and text categorization using deep learning techniques.

We recorded the maximum attendance for this session. The participants were very much satisfied with the session. An interactive question and answer session was lasts for 30 minutes. The session was closed at 1:30PM.

Day-2 Session-4: (21/09/2022)

The session 4 was continued by Dr. D. Anil Kumar Assistant Professor,

PACE Institute of Technology & Sciences (Autonomous) and the topic covered is 'The ResNet'. He explained how the residual networks works for specific applications. He implemented the human action recognition and the sign language recognition resnet models to the participants.

Day-3 Session-5: (22/09/2022)

The session 5 was again taken by the resource person Mr. Nanda Kishore Mallapragada, Senior Data Scientist, Gramener and the topic covered is 'Enhance marketing strategies using NLP'.

He showed how to implement YOLO architectures for object detection and human face detection and recognition. He implemented an application called student attendance monitoring system with the help of YOLO architectures. At the end of the session he clarified the participants doubts.

Day-3 Session-6: (22/09/2022)

This session was taken by Mr. Nanda Kishore Mallapragada, Senior Data Scientist, Gramener and he covered the topic 'Machine Learning Vs Deep Learning Experience'.

He explained the basics of machine learning and deep learning. He also explained how the deep learning is differ from machine learning and various application areas of both the concepts. He showed various benefits of implementing deep learning algorithms.

Day-4 Session-7: (23/09/2022)

The session 7 was taken by the industry expert Dr. B. Kranthi Kiran, Professor, JNTUH and the topic chosen by him is 'Applications of AI & ML'.

He explained the Triplet loss networks and how they perform classification based on distance metrics. The session was very interesting as it is a new concept of deep learning. He also showed some implemented applications in their company.

Day-4 Session-8: (23/09/2022)

The afternoon session was continued 'Speech Processing Models with deep learning'.

It was a great session by him. In this session he explored various projects done by them in their speech processing research laboratory. He dealt with various problems being faced while capturing and processing the speech signals.

Day-5 Session-9: (24/09/2022)

The session 9 was taken by the industry expert Mr. M. Teja Kiran Kumar from Yantrisiksha Technologies and the topic delivered is 'Image Captioning Models'.

He has educated the participants in using AWS services from Amazon for high end applications. He gave a demo on how they are working with cricket bowling and batting analysis. He also gave a demo on how to perform labelling which is a more important task in preparing training data. He explained how to organize the training, testing and validation data sets. He also explained how to fine tune the network parameters / hyper parameters to attain more accuracy.

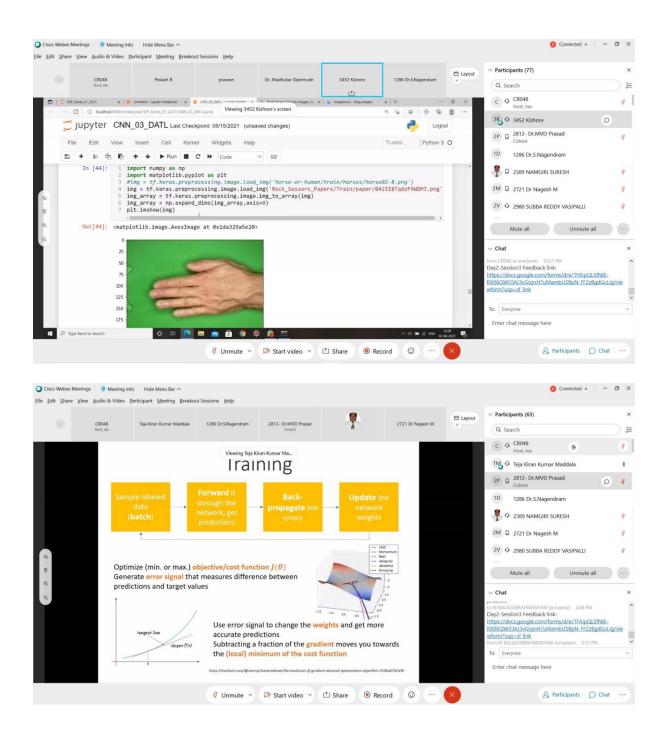
Day-5 Session-10: (24/09/2022)

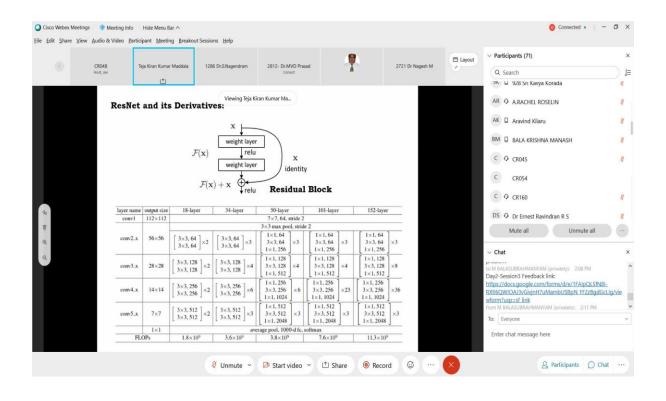
This was the last session of the FDP and the session was taken by an academic expert Dr. P V V Kishore. The topic he chosen for this session is 'Speech processing deep learning model building pipelines'.

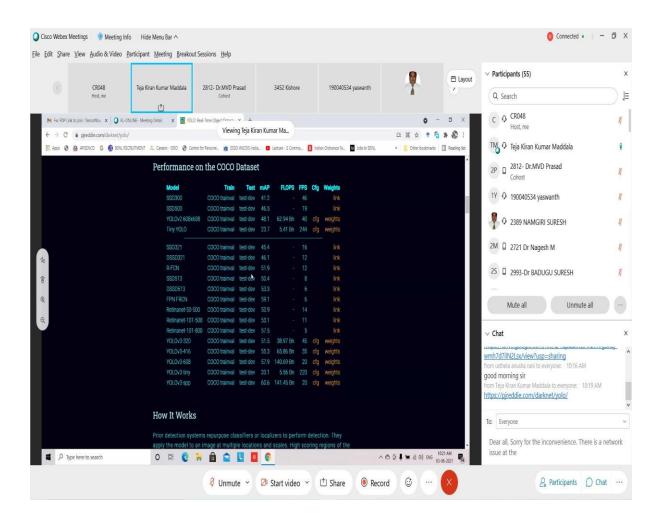
He explained some speech processing pipelines for researchers. He continued his session by giving suggestions on how to choose a research topic and how to write a research articles and the essential sections that should be there in one's research article.

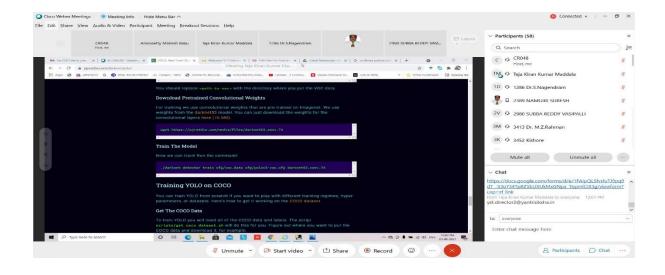
Finally the FDP was ended with a valedictory and vote of thanks from the organizers.

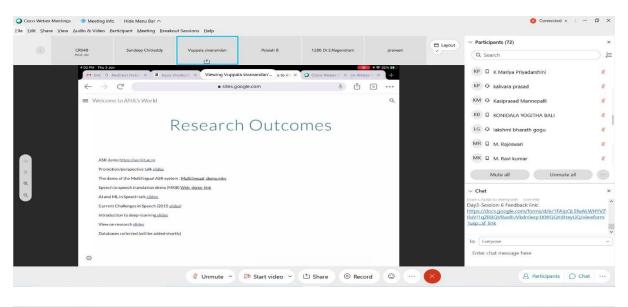
Few screen shots were taken during the FDP and are kept here for your reference.

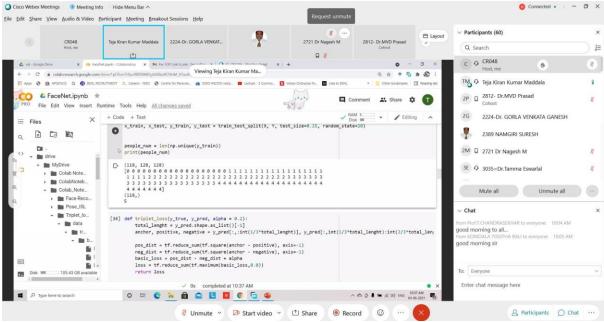


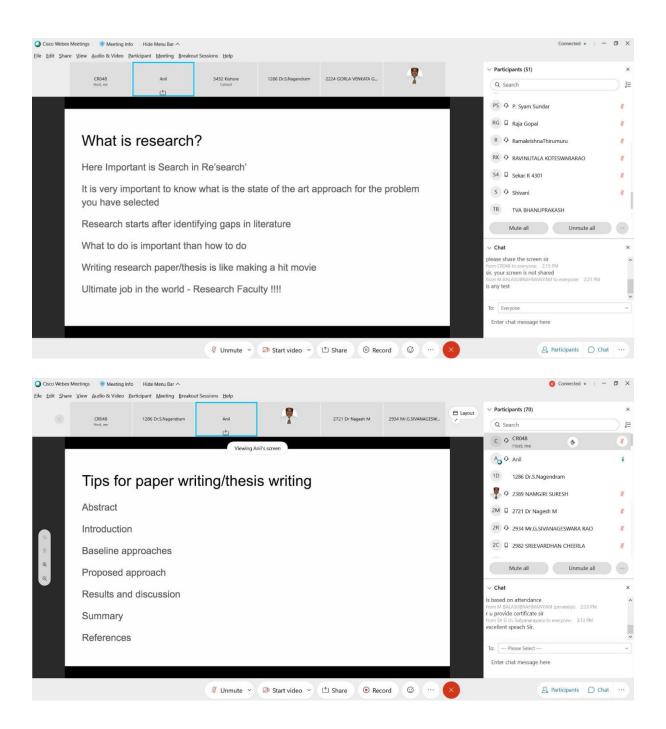












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