MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

(Autonomous Institution – UGC, Govt. of India)

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

REPORT ON ONE WEEK FDP ON "MACHINE LEARNING AND DEEP LEARNING"

January 02-07, 2023

The Department of Computer Science and engineering organized One Week FDP on"**MACHINE LEARNING AND DEEP LEARNING"** from January 03-07, 2023 for the Faculty Members. The session was inaugurated by Dr.S.Srivasa Rao, Principal, MRCET, Dr.S.Shanthi, HOD, CSE. More than 60 faculties have participated and got benefited. Mr.Kagandeep Thakur, Technical Director, Cognitive Creators, Mr.P.Srinivas Reddy,CEO,Sankalp Solutions Ltd, was the resource person of FDP and also for next day Dr.R.Nidhya, Professor, CSE, from MITS, Madanapalle has taken session on neural networks.

Objective of the Workshop:

The aim of the Workshop is to provide hands on experience using Python-Jupyter Notebook and Google Co-lab to gain an in-depth knowledge on Machine Learning concepts, Neural Networks and Deep Learning concepts with practical implementation of various algorithms.

Highlights

- ☐ To understand basic concept of Machine Learning Mechanisms and implementation of them in real time environment
- ☐ To design case studies on concepts like linear regression and so on
- ☐ To understand Deep Learning concepts and activation function and implementation with different data sets
- ☐ Illustrated usage of various data sets and their application over concepts ofmachine learning and deep learning

Schedule

Day 1:

Morning and Afternoon Session's:
- ☐ Inauguration of FDP
- ☐ Brief introduction of Machine Learning Concepts
- ☐ Overview of Supervised and Unsupervised Learning

Day 2:

Morning and Afternoon Session's:
- ☐ KNN Algorithms and integration
- ☐ Brief introduction Gradient Decent and cost functions
- ☐ Concepts of Test and Train Splits and Linear regression
- ☐ Bias -Variance and Trade off
- ☐ Practical Session 2: Gradient Decent with Linear regression with Real Time Implementation on Data Sets.

Day 3:

Morning and Afternoon Session's:

- ☐ Introduction to Neurons and Feed forward networks
- ☐ Backward propagation to find loss function
- ☐ Practical approach on concepts of activation function and bias calculations
- ☐ Cost function and overfitting concepts and real time implementations

Day 4:

Morning and Afternoon Session's:

- ☐ Brief introduction Convolution Neural Networks
- ☐ Concepts on Layers of CNN like Pooling and Padding
- ☐ Practical approach on CNN with data sets with various pooling and paddingratios
- ☐ Image identification and testing and training
- ☐ Quiz on topics covered

Day 5:

Morning and Afternoon Session's:

- ☐ Brief introduction on Keras Layers for Convolutional Neural Networks
- ☐ Case study on image classification and identification with data sets
- ☐ Testing and Training data validation
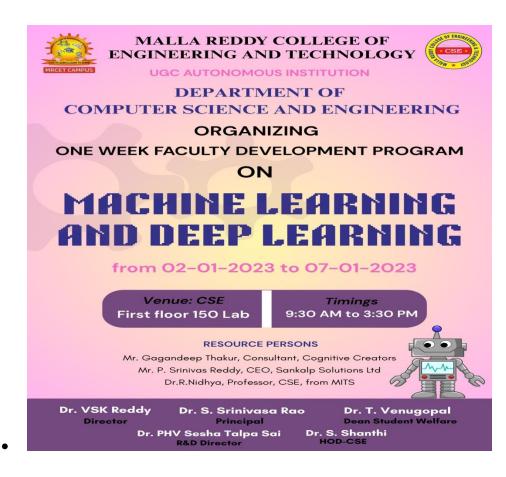- ☐ Clarification of doubts on topics covered

Day 6:

Morning and Afternoon Session's:

- ☐ Recurrent Neural Networks (RNNs) and Natural Language Processing (NLP)
- ☐ Transfer Learning and Optimization Techniques
- ☐ Research Trends, Panel Discussion, and Valedictory Session

Outcome of the Programme:

- By the end of this **six-day FDP on Machine Learning and Deep Learning**, participants will be able to:
- Understand the core concepts of **Machine Learning (ML)** and its applications
- Implement **K-Nearest Neighbors (KNN), Linear Regression**, and **Gradient Descent** on real-world datasets.
- Learn about **Keras for CNN implementation** and **training/testing dataset validation**.
- Understand the concepts of **RNNs and their applications in Natural Language Processing (NLP)**.

Photos Gallery