

**SRI VENKATESWARA COLLEGE OF ENGINEERING
PENNALUR, SRIPERUMBUDUR-602117
(An Autonomous Institution)**

Department of Information Technology

REPORT ON INSIGHTS INTO DEEP LEARNING

**Speaker: Dr. M. K. Sandhya, Professor/CSE, Meenakshi Sundararajan Engineering College,
Chennai**

Date: 29/01/2021

Time: 10.00 AM

Objectives

To get an exposure about Introduction to Artificial Intelligence, Machine Learning and Data Science Life Cycle.

- To know Deep Learning in the context of Artificial Intelligence.
- To identify the difference between Machine Learning and Deep Learning.
- To Understand about Neural Networks and Neural Network Playground (playground.tensorflow.org).
- To get exposure on Convolutional Neural Networks and its application in text classification.

About the programme

Deep learning has emerged as an efficient function approximation technique for high-dimensional spaces, and presents a fast solution to the inverse problem, yet the science of its implementation in similarly defined problems remains largely unexplored. The breakthroughs in deep learning have led to a paradigm shift in artificial intelligence and machine learning. On the one hand, numerous old problems have been revisited with deep neural networks and huge progress has been made in many tasks previously seemed out of reach, such as machine translation and computer vision. In recent years, deep learning methods have received a massively increasing amount of attention due to their almost human-level performance on high-level vision tasks like semantic segmentation, object classification and automatic image captioning. These methods have also shown to be competitive with current state-of-the-art methods for low-level vision tasks like denoising and inpainting. Despite their impressive performance, deep learning methods still lack a unified theoretical foundation and understanding. Low-level vision tasks can, on the other hand, also be addressed by methods that do have a very strong theoretical foundation

Benefits

- Faculty & Students were exposed to the concepts of Deep Learning, Neural Networks, Convolutional Neural Networks and their applications.
- This guest lecture benefitted both students and faculty who are doing their research work in the above area as well as motivational talk to third year students who may start their research in Deep learning.

Coordinators

**Dr.V.M.Sivagami,Associate Professor/IT
Mr.V.Rajaram,AP/IT**

SCREENSHOTS

Prologue

Data Science Life Cycle

Communication
 - Communicating findings to stakeholders and decision makers

Data Discovery
 - Searching for different sources of data and exploring structured and unstructured data

Data Preparation
 - Converting data into a common format

Mathematical Models
 - Using variables and equations to establish relationships

Getting Things in Action
 - Gathering information and deriving outcomes based on business requirements

DATA SCIENCE

Meeting details (104): AKILESH IT, AMARNATH KANAGAR..., ANISH RAGHAVENDRA IT, ARUN KARTHIK IT, ARUN KUMAR IT, ARUN KUMAR IT, ASHWIN MERARIE IT, BADRI NARAYANAN IT, BARATH IT, BHARATHKUMAR IT

ML vs. Deep Learning

Most machine learning methods work well because of **human-designed representations and input features**
 ML becomes just **optimizing weights** to best make a final prediction

Machine Learning in Practice

Describing your data with features a computer can understand
 Domain specific, requires Ph.D. level talent

Learning algorithm
 Optimizing the weights on features

Feature	NER
Current Word	✓
Previous Word	✓
Next Word	✓
Current Word Character n-gram	all
Current POS Tag	✓
Surrounding POS Tag Sequence	✓
Current Word Shape	✓
Surrounding Word Shape Sequence	✓
Presence of Word in Left Window	size 4
Presence of Word in Right Window	size 4

Meeting details (104): JAYANTHI D IT, JERUSHA S IT, JESWIN JABEZ IT, JOANN NITTIKA IT, KAAVIYA BASKARAN ITO, KALAIARASI IT, KALAVATHI S IT, KAVIN ANAND IT, KAVIYA IT

Types of Learning

Supervised: Learning with a **labeled training set**
 Example: email *classification* with already labeled emails

Unsupervised: Discover **patterns in unlabeled data**
 Example: *cluster* similar documents based on text

Reinforcement learning: learn to **act** based on **feedback/reward**
 Example: learn to play Go, reward: *win or lose*

Classification: TEXT → class A, class A

Regression: Scatter plot showing a positive linear correlation.

Clustering: TEXT → groups of similar items.

Anomaly Detection, Sequence labeling

Meeting details (103): GURU GOKUL AR IT, HARISH GUPHA IT, HARITHA C IT, HARITHA K IT, HOD IT, INDUMATHI A, JANANI IT, JASON IT, Jasvirm Raj