

REPORT CAPACITY BUILDING PROGRAM

INSIGHTS TO DEEP LEARNING

Session Date: 19-08-2022

Session Timing: 09:00 a.m. to 01:00 p.m.

Convenor: Dean-QASDC

Participants: Faculty members of MCA Department

Organised by: Quality Assurance and Skill Development Center

1. Poster





Quality Assurance and Skill Development Center

Presents

CAPACITY BUILDING PROGRAM

Insights to Deep Learning

Date : 19.08.2022 Time : 09:00 am - 01:00 pm



Dr. Anand Kumar M Dept. of Information Technology, NITK, Surathkal

Targeted Audience : Faculty members of MCA Department

Dean – QASDC Dr. Sanjeev Sharma Principal **Dr. Manjunatha**

2. Profile of the Expert

Dr. Anand Kumar M has a total experience of 10 years with 3 years at NITK. He is Ph.D (Amrita Vishwa Vidyapeetham), M. Tech (Computational Engg and Networking) - Amrita Vishwa Vidyapeetham, B.Tech (Information Technology) - APEC, Melmaruvathur (Anna University). His research interests are Natural Language Processing, Social Media Text Analytics and Machine Learning and Deep Learning. He has several research consultancies projects to his credit. Some are "Computing Tools for Tamil Language Teaching and Learning" (Principal Investigator), Project Cost-20 Lakhs, funded by Tamil Virtual Academy (Govt-of-Tamilnadu) in 2017-2018. Malayalam Wordnet (Co-Investigator), Project Cost - 32 Lakhs, funded by Diety, Govt of INDIA in 2014. He is recipient of the First place in the shared task Fake news Detection@CEF2021, MAPonSMS@FIRE2018 and second place in APDA@FIRE2019, "Research Excellence Award "(2016-2017) from Amrita Vishwa Vidyapeetham, in Jan 2018, PK Das memorial South India's Best Faculty award in CSE (junior) – 2017 by Nehru Institutions on Dec 2017, Received the second prize in NLP Tools contest SMT and Mixed Pos tagging, ICON 2015, Best Paper awards -ICICC-2020, ICCACI-2017, ICON2010 at IIT-Kharagpur.' Several NLP Tools and Resources are created by him.

3. Objective

To apprise the faculty members of MCA department with the fundamentals and insights to capabilities of Deep Learning. Deep learning eliminates some of data pre-processing that is typically involved with machine learning. These algorithms can ingest and process unstructured data, like text and images, and it automates feature extraction, removing some of the dependency on human experts.

4. Content

- History of Artificial Intelligence
- Machine Learning Vs. Deep Learning
- Applications of Deep Learning
- Classification Learning and Prediction
- Demonstration
- Future Scope

What is Deep Learning?

Deep Learning is a subset of Machine Learning that uses mathematical functions to map the input to the output. These functions can extract non-redundant information or patterns from the data, which enables them to form a relationship between the input and the output.

This is known as learning, and the process of learning is called training.

Modern deep learning models use Artificial Neural Network or simply neural networks to extract information.

These neural networks are made up of a simple mathematical function that can be stacked on top of each other and arranged in the form of layers, giving them a sense of depth, hence the term *Deep Learning*.

Deep learning can also be thought of as an approach to Artificial Intelligence, a smart combination of hardware and software to solve tasks requiring human intelligence.



Artificial Intelligence vs Machine Learning vs Deep Learning

Deep Learning was first theorized in the 1980s, but it has only become useful recently because:

- It requires large amounts of labelled data.
- It requires significant computational power (high performing GPUs)

5. Photographs







6. Participants

- 1. Dr. V. Asha, Professor, Department of MCA
- 2. Dr. K. G. Madhwaraj, Professor, Department of MCA
- 3. Dr. A. P. Nirmala, Associate Professor, Department of MCA
- 4. Dr. B. Nithya Ramesh, Associate Professor, Department of MCA
- 5. Dr. Arpana Prasad, Associate Professor, Department of MCA
- 6. Prof. S. P. Sreeja, Sr. Assistant Professor, Department of MCA
- 7. Prof. GovindRaj M, Sr. Assistant Professor, Department of MCA
- 8. Prof. Vishwanath C. R. , Sr. Assistant Professor, Department of MCA
- 9. Prof. Jincy Mathew, Sr. Assistant Professor, Department of MCA
- 10. Prof. Binju Saju, Sr. Assistant Professor, Department of MCA

7. Outcome

By the end of the session the faculty members of the department was able to understand the evolution of Artificial Intelligence across various decades. The role of Deep Learning in it's present state. The faculty members were able to identify the distinguishing features between machine learning and deep learning. Deep learning eliminates some of data preprocessing that is typically involved with machine learning. These algorithms can ingest and process unstructured data, like text and images, and it automates feature extraction, removing some of the dependency on human experts.