

Report on a talk

“Project Formulation and Implementation”

Organized under R&D series, SCET

Date: 20th June 2019

Venue: Audio Visual room, EC Department

Speaker: Prof. Arnav Bhavsar, Asst Professor, IIT Mandi.

Department of Electronics and Communication Engineering have organized an Expert Talk on "**Project Formulation and Implementation**" for the final year PG and UG students under Research & Development cell, SCET. The speaker of the talk was Prof. Arnav Bhavsar, Asst Professor, IIT Mandi. Talk was arranged on 20th June 2019 from 1:30 PM onwards in AV Room of Electronics Department for PG students, final year UG students and faculty members with objective of providing knowledge to researchers for formulating a research problem and thereby providing an optimum solution for the same. .

Prof. Bhavsar initiated the session by giving an insight about the environment in which IIT students undertake their studies. He explained how the students are gaining more knowledge from the practical studies and implementing various projects. He highlighted the manner in which research projects are useful for all around development of an engineer's mind as well as nation as a whole

Prof. Bhavsar took the session forward by explaining some concepts of Deep Learning and the present scenario of research in Deep Learning. He further highlighted classification of different parts of Deep Learning. He further added that Deep learning also known as deep structured learning or hierarchical learning is part of a broader family of machine learning methods based on artificial neural networks. Learning can be supervised, semi-supervised or unsupervised. He stated different applications of deep learning which are as follows:

Visual art processing that is closely related to the progress that has been made in image recognition is the increasing application of deep learning techniques to various visual art tasks. DNNs have proven themselves capable. **Natural language processing** can be thought of as a representational layer in a deep learning architecture that transforms an atomic word into a positional representation of the word relative to other words in the dataset; the position is

represented as a point in a vector space. **Drug discovery and toxicology in which** research has explored use of deep learning to predict the bio molecular targets, off-targets, and toxic effects of environmental chemicals in nutrients, household products and drugs. **Customer relationship management in which** Deep reinforcement learning has been used to approximate the value of possible direct marketing actions, defined in terms of RFM variables. The estimated value function was shown to have a natural interpretation as customer lifetime value.

Recommendation systems have used deep learning to extract meaningful features for a latent factor model for content-based music recommendations. Multi-view deep learning has been applied for learning user preferences from multiple domains. **Bioinformatics** in medical informatics, deep learning was used to predict sleep quality based on data from wearable and predictions of health complications from electronic health record data. Deep learning has also showed efficacy in healthcare. **In Medical Image Analysis**, Deep learning has been shown to produce competitive results in medical application such as cancer cell classification, lesion detection, organ segmentation and image enhancement. Few more applications include Mobile advertising, Image restoration, financial fraud detection and many more

Also a brief discussion took place about the new pattern matching algorithm used in Deep Fakes. He added that students from SCET can even work as an intern at IIT and can contact any IIT professor via him.

It was truly an effective session with thorough teaching, learning and understanding qualities. Some glimpse of the talk are as below:



