

<b>Workshop Title</b>	Faculty Development Workshop on Machines Learning and Deep Learning Fundamentals
<b>Dates</b>	December 16, 2019 – December 20, 2019
<b>Venue</b>	GTU Chandkheda Campus

### About the Workshop

Gujarat Technological University in association with Vodafone India Foundation is organising the workshop on Machine Learning and Deep Learning fundamentals. This faculty workshop is the second instalment in the series of advanced applications workshop from Vodafone India Foundation. The workshop focuses on the in-demand skills in the Industry: Machine Learning and Deep Learning. The objective of the workshop is to familiarize the faculty participants with the fundamentals through a hands-on experience in areas of Machine and Deep learning.

### About Vodafone India Foundation

Over the last 25 years, Vodafone India Foundation network has focused on combining Vodafone's expertise with the company's charitable giving to do social good in the world. As Vodafone's reach continues to expand - moving from mobile to connectivity - there are greater opportunities for Vodafone India Foundation to harness these advancements for the benefit of society.

In India, Vodafone India Foundation focusses on addressing challenges relating to education, equality and access. We are committed to enable people and technology to drive innovation, disseminate knowledge, and create shared value to improve lives. We work in partnership with key charities, development agencies and the community to drive social change on a large scale in India.

### Target Audience

This program is suitable for engineering faculty of all disciplines. The only requirement is an interest in the field of data and its paraphernalia.

### Workshop Pre-requisites

Participants attending the workshop should have

- Prior experience of working in Linux
- Familiarity with Linux Fundamentals and commands
- Intermediate understanding of Python
- Fundamentals of Data Analytics
- Participants should have the following installed on their machines
  - Operating System: Ubuntu 16.04LTS (<http://releases.ubuntu.com/16.04/>)
  - Anaconda 2019.10 for Linux-Python 3.7 version (<https://www.anaconda.com/distribution/>)

## Workshop Outcomes

At the end of the program participants will be able to

- Become proficient with Python programming and use it to develop applications.
- Use data analytics tools and technologies for machine learning applications
- Utilise open-source, powerful machine learning, deep learning libraries.
- Understand and experience real-world solutions for Machine Learning & Deep Learning
- Use data-driven insights to make decisions and predictions.

## Workshop Agenda

	Timeline	Section	Description
<b>Day 1</b>	10:00 AM - 11:30 AM	Introduction	Workshop Introduction and Inauguration
	11:30 AM - 01:00 PM	Machine Learning	Introduction to Machine Learning - Fundamentals, Types & Demos
	01:00 PM - 02:00 PM		Lunch Break
	02:00 PM - 04:00 PM		Getting started with Scikit-Learn, ML Models Evaluation Metrics
	04:00 PM - 05:00 PM		Supervised Machine learning Algorithms with Case study-I
	Timeline	Section	Description
<b>Day 2</b>	10:00 AM - 11:00 AM	Machine Learning	Supervised Machine learning Algorithms with Case study-II
	11:00 AM - 01:00 PM		
	01:00 PM - 02:00 PM		Lunch Break
	02:00 PM - 04:00 PM		Unsupervised Machine learning Algorithms with case study-I
	04:00 PM - 05:00 PM	Unsupervised Machine learning Algorithms with case study-II	
	Timeline	Section	Description
<b>Day 3</b>	10:00 AM - 11:00 AM	Deep Learning	Introduction to Deep Learning- Neural Nets,Background and Fundamentals
	11:00 AM - 01:00 PM		Perceptron Model -Logic Gates,Single Layer Perceptron
	01:00 PM - 02:00 PM		Lunch Break
	02:00 PM - 04:00 PM		Multilayer Perceptron with Case Study-I
	04:00 PM - 05:00 PM		Neural Networks: Hyperparameter,tuning and Optimization with Case Study -II

	Timeline	Section	
<b>Day 4</b>	10:00 AM - 11:00 AM	Deep Learning	Deep Learning Frameworks:Tensorflow and Keras-Basics and Syntax
	11:00 AM - 01:00 PM		Convolution Neural Network and application with Case Study-I
	01:00 PM - 02:00 PM		Lunch Break
	02:00 PM - 04:00 PM		Recurrent Neural Network and Transfer Learning Models
	04:00 PM - 05:00 PM		Ethics of Machine Learning
	Timeline	Section	Description
<b>Day 5</b>	10:00 AM - 11:00 AM	Cloud Computing	Introduction to cloud computing & Amazon AWS cloud
	11:00 AM - 01:00 PM		Hosting static and dynamic website using Amazon S3 and EC2 services
	01:00 PM - 02:00 PM		Lunch Break
	02:00 PM - 04:00 PM		Expert Session from Vodafone
	04:00 PM - 05:00 PM		Valedictory Ceremony

## Trainer Profile

### Abhishek Srivastava (Sr. Manager – Technical Services)

Abhishek is passionate to learn about dynamic market trends and loves to explore, innovate and share. He is deeply engaged on multiple projects in fields of Artificial Intelligence, Data Analytics and Internet of Things (IoT) over couple of years now. He possess 10+ years of total work experience which spans over varied projects and roles in industry, involving popular cutting-edge technologies. He also actively tinkers and optimizes Machine Learning code blocks using Intel High Performance Computing Tools (HPC) to make them more effective and product relevant.

He acted as Guest Speaker at IEEE Conference #42183, ICEDSS-2018 at Mahendra Engineering College, Namakkal,Tamil Nadu, during 2-3 March 2018. He have published few research papers in field of Embedded Linux & Digital Image Processing. He exercises strict industry training standards during training programs and have successfully trained, mentored and guided 1500+ students across India on numerous Intel technologies and platforms. He have also conducted multiple FDP programs to assist faculty members to get acquainted and gain experience with latest technological initiatives. He lives in Bangalore.

### Anip Sharma (Subject Matter Expert)

Anip Sharma has been passionately powering grassroots innovations for 3 years now through facilitating and mentoring innovators. A Bachelor of Engineering from Thapar University, he has been diligently involved in co-creating solutions for the modern developmental challenges, leveraging technology and design.

Currently working with FICE as a subject matter expert, he has played a pivotal role in enabling the youth of the country with the latest technologies such as Artificial Intelligence, Machine Learning, High Performance Computing, and Internet of Things. His involvement with the participants focuses on using technology to create end-to-end industrial solutions, and be wisely designed at the same time, holding relevant in the times of the ever-changing market needs.

Prior to his current engagement, Anip has been at the helm of setting up of Atal Tinkering Labs (a Government of India initiative) in the country. As an innovation coach, he has worked with Intel to impart 'Future Skills' to the youth of the country - through technical workshops, community outreach, and solution deployment - aimed at the development of a future workforce at par with the global standards. He has also worked with National Business Design Incubator, National Institute of Design, Ahmedabad, assisting numerous award-winning enterprises to create and release products, solutions and services a like. Anip is a rapacious reader who loves his music and travel, and currently resides in Bangalore, Karnataka.