



# PRACTICAL MACHINE LEARNING WITH TENSORFLOW

**Mr. Ashish Tendulkar**

Department of Computer Science and Engineering  
Google

**PROF. BALARAMAN RAVINDRAN**

Department of Computer Science and Engineering  
IIT Madras

**TYPE OF COURSE** : Rerun | Elective | UG  
**COURSE DURATION** : 8 weeks (17 Aug'20 - 9 Oct'20)  
**EXAM DATE** : 18 Oct 2020

**PRE-REQUISITES** : Programming, Data Mining or Machine Learning or Data Science

**COURSE OUTLINE :**

This will be an applied Machine Learning Course jointly offered by Google and IIT Madras. We will cover the basics of Tensorflow and Machine Learning in the initial sessions and advanced topics in the latter part. After this course, the students will be able to build ML models using Tensorflow.

**ABOUT INSTRUCTOR :**

Prof. Balaraman Ravindran is currently an associate professor in Computer Science at IIT Madras. He has nearly two decades of research experience in machine learning and specifically reinforcement learning. Currently his research interests are centered on learning from and through interactions and span the areas of data mining, social network analysis, and reinforcement learning.

Mr. Ashish Tendulkar is an experienced AI/ML professional with specialization in deep learning and natural language processing. He carry 18 years of experience of working in the domain on AI and machine learning. This includes 11 years of post-PhD experience in multiple domains, including fintech, fashion, online media and advertising, oil and gas, manufacturing, IT systems, healthcare and messaging. He had acted as trusted machine learning advisor for start ups in diverse areas including fashion, fintech, agritech, healthcare, smart messaging, autonomous IT systems, HR and retail.

**COURSE PLAN :**

**Week 1:** Getting started with Tensorflow

**Week 2:** Overview of Machine Learning (Process and Techniques, Demonstration of ML concepts with Deep Playground)

**Week 3:** Data Input and Preprocessing with Tensorflow

**Week 4:** Machine Learning Model Building

**Week 5:** Prediction with Tensorflow

**Week 6:** Monitoring and evaluating models using Tensorboard

**Week 7:** Advance Tensorflow (Building custom models - CNNs, Scaling up for large datasets)

**Week 8:** Distributed training with hardware accelerators