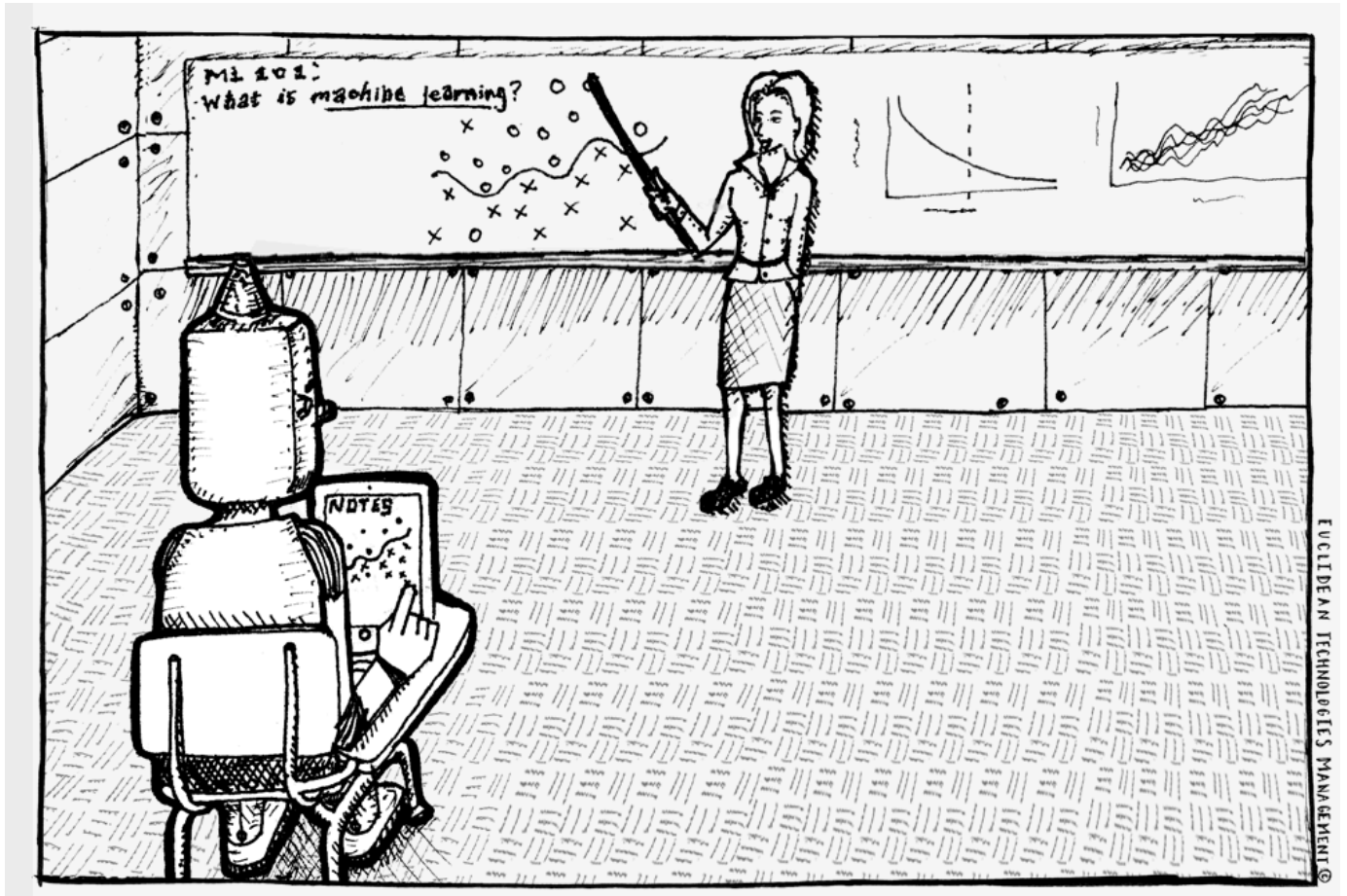


Google's Machine Learning Crash Course



Introduction

Learning systems like human brain learn from its surrounding and use that knowledge to take the actions. For example, If a person slaps you every time you appear in front of him/her, you will try to avoid him. In today's world there are lot of problems which requires continuous learning of the surrounding. Machine learning is a tool which can be used to solve variety of problems in lot of domains.

Machine Learning systems "learn" how to combine input to produce useful predictions for never-before-seen data. For example, suppose you need to develop a program that recognizes the type of person that would beat you if you meet them. A non-machine learning approach might look for certain patterns identifying that person like facial characteristics or the ratio of nose size to ear size, etc.

A machine learning approach would involve a program examining lots of persons (features of every person) and gradually learning what various people would act whenever they meet you. You could think of a machine learning program as similar to a child learning to distinguish different animals. Gradually, with a certain amount of gentle feedback, the child learns which characteristics imply a dog or a cat or an elephant.

Deep Learning vs Machine Learning vs AI

Artificial Intelligence and Machine Learning are often used as replacement of each other but they are **not!!**

The Goal of Artificial Intelligence is to make a machine competent enough to mimic human behaviour while Machine Learning focuses only on the learning capabilities of a machine, you may use it for your interest of application. So, Machine learning helps Artificial Intelligence to reach its goal.

Similarly, Deep Learning and Machine Learning also share the similarities. Deep Learning uses neural networks as training environment instead of statistical methods and can be considered as a subpart of Machine Learning as they share the same goal.

In this course, we also will cover basics of Neural Networks and exercises on that.

Why Tensorflow?

This is a dialogue between 2 persons on "Why Tensorflow?"

Person 1: Well it's an ML framework!!

Person 2: But isn't it is a complex one, I know a few which are very simple and easy to use like Sci-Kit learn, PyTorch, Keras, etc. Why to use Tensorflow?

Person 1: Ok, Can you implement your own Model in Sci-Kit learn and scale it if you want?

Person 2: No. Ok but then for Deep Learning, why not to use Keras or PyTorch? It has so many models already available in it.

Person 1: Tensorflow is not only limited to implementing your own models. It also has lot many models available in it. And apart from that you can do a large scale distributed model training without writing complex infrastructure around your code or develop models which need to be deployed on mobile platforms.

Person 2: Ok. Now I understand "Why Tensorflow?"

One must think before choosing things that he/she uses or going to use. Here in this course we are neither going to use Tensorflow to develop our own model nor going to do distributed model training but to use the built-in models. Then the question that comes to your mind would be again "Why Tensorflow?"

As a student, if you familiarise yourself with Machine Learning and Tensorflow basics, in future whenever you join any company or research labs or any institution which does machine learning, you should be able to use available models as well as develop your own models which can be trained on a large distributed system or should be able to deploy your model on mobile platforms.

Interesting Reads:

- [Cool Applications of ML, AI and Deep Learning](#)
- [Classification Techniques](#)
- [A Good analogy for Neural Networks](#)
- [Crazy things that people do with ML](#)
- [Host your own model as a service with Flask and Docker](#)

This is not it!! You are welcome to visit other blogs on [Medium](#), [Quora](#), [Data Science StackExchange](#) or [AI StackExchange](#)

Courses:

- Udacity - [Intro to Machine Learning](#)
- [CMU Machine Learning Course](#)
- [University of Washington - Machine Learning Foundations](#)

Video Lecture series

- [Google Developers Machine Learning Recipes](#)
- [Lectures by Andrew NG](#)
- [Lecture by Patrick Winston](#)