Pytorch and deep learning fundamentals

What is Machine Learning?

Machine learning is transforming data into numbers and uncovering patterns in those numbers.

Machine Learning is a subset of AI which mimics human

ML ease the tasks of human which is difficult or impossible to to manually.

If any task a human effort take a lot of time we can get results by passing data to ML

ML outputs may or may not be as accurate as a simple human calculation do but with certain bandwith or a CI we predict the future information. For example Weather Forecasting, Sales Prediction, a lot of experiments in medical science, etc…

How deep learning is different from machine Learning?

Deep learning deals with more complex data

It deals with a huge amount of data

It works like a human neuron systems where we divide works into multiple layers and improve performances at each layer.

DL follows the principle of Gradient Descent and we try to reach the global minima where our model has less error.

In this DL modelling we try to find smallest value of cost function. Smaller the cost value higher the accuracy.

Why do you want to use machine learning and deep learning?

In the time of technology, when a lot of data is generated through social media platforms, online. It is important to understand what kind of data is being is generated. What are the likes and dislikes of people. For example if a customer has visited to online shopping website. Then it is important to understand the likes and dislikes of customers. How to engage more customers. How to target customers. What are the different segments of customers who is buying?

Understanding these things and doing traditional programming will become very cumbersome. To deal with such situation we use ML algorithms. Everyday new developments can be seen in this field where global techies trying to handle different human challenges technically. ML algorithms are like APIs where all mathematical logics, all rules are difined in the algorithms.

Where to use ML or DL approach?

When problem has a long list of rules and traditional programming fails then we can apply ML or DL algorithms.

To bring the adaptability of changing environment

To get insights from a large datasets