# Introduction to Deep Learning

1. What Is Deep Learning

1.1. Deep learning definition:

Deep learning is a method in artificial intelligence (AI) that teaches the computers to process the data by using neural networks like human brain.

1.2. Deep learning part in machine learning:

- Deep learning is a sub part of machine learning and machine learning is a support of artificial intelligence.
- Deep learning is an advanced technique in machine learning.
- Deep learning can solve complex problems which cannot able to resolve in machine learning old algorithms.
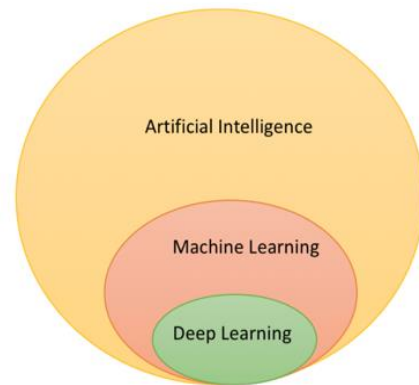

2. Why Deep Learning so Popular

There are mainly three reasons to explain popularity of the deep learning technique:

1. High accuracy at big size of data.
2. Implicit feature extraction models.
3. Solve complex problems.

2.1. High accuracy at big size of data:

Nowadays the Data increasing drastically in every business. Apply machine learning is the major problem on this huge amount of data. The old machine learning algorithms cannot give perfect accuracy on huge amount of data.
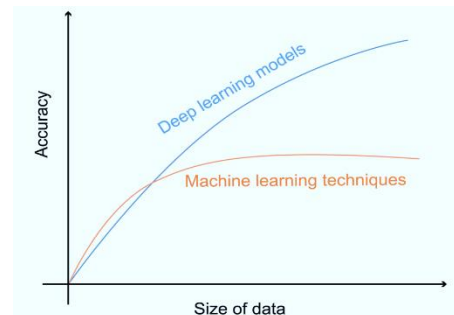
- If you observe the image the accuracy went to a saturated point in machine learning techniques when size of data getting increased.

- But in deep learning algorithms accuracy exponentially increased with size of data. So, the deep learning algorithms can give more accuracy when size of data increasing.

2.2. Implicit feature extraction models:

- In old machine learning algorithms needs feature extraction steps separately.
- But in deep learning, feature extraction can handle by models, which means this feature extraction step includes in model training and each model has its own way to handle the feature extraction.

2.3. Solve complex problems:

- Deep learning algorithms can solve complex problems when compared with old machine learning algorithms.
- For example, deep learning can be used image classification, NLP, chatbot kind of projects, but normal machine learning algorithms can't work on these complex areas.