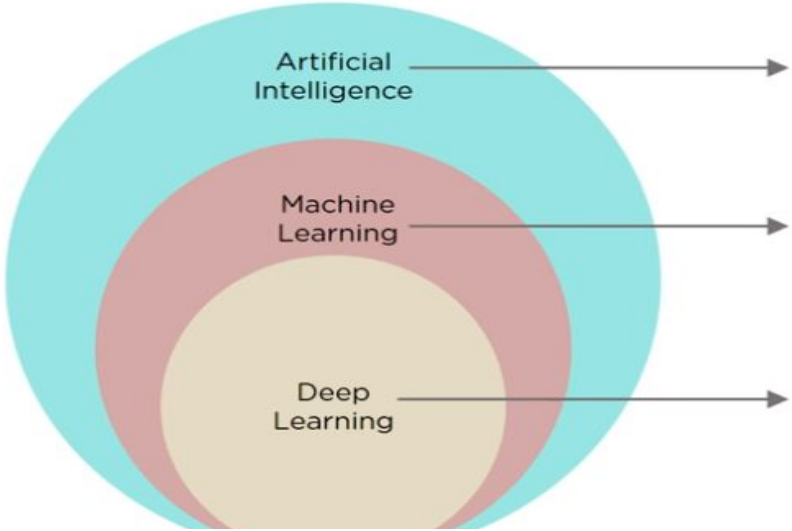
What is Deep Learning?

Deep Learning is a subset of Machine Learning that has networks which are capable of learning from data that is unstructured or unlabeled and works similar to the functioning of a human brain.



Ability of a machine to imitate intelligent human behavior

Application of AI that allows a system to automatically learn and improve from experience

Application of Machine Learning that uses complex algorithms and deep neural nets to train a model

Why do we need Deep Learning?

Works with unstructured data

Machine Learning works only with large sets of structured data, while Deep Learning can work with both structured and unstructured data

Handle complex operations

Deep Learning algorithms can perform complex operations easily while Machine Learning Algorithms cannot

Feature Extraction

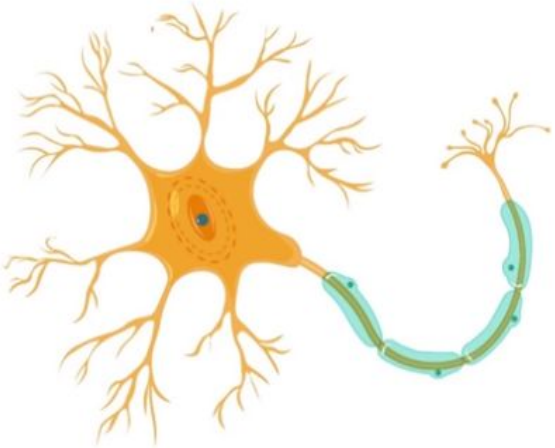
Machine Learning algorithms use labelled sample data to extract patterns, while Deep Learning accepts large volumes of data as input, analyze the input to extract features out of an object

Achieve best performance

Performance of Machine Learning algorithms decreases as the amount of data increase, so to maintain the performance of the model we need Deep Learning

What is a Neural Network?

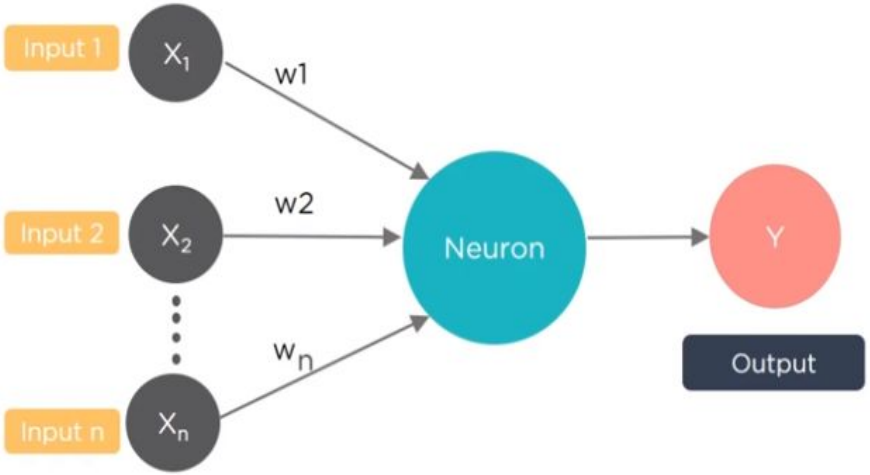
Neural Networks are modeled after biological neural networks that allow computers to learn and interact like humans do. It has interconnected neurons with dendrites that receive inputs, and based on those inputs, it produces an electric signal i.e. output through the axon.



Biological Neuron

What is a Neural Network?

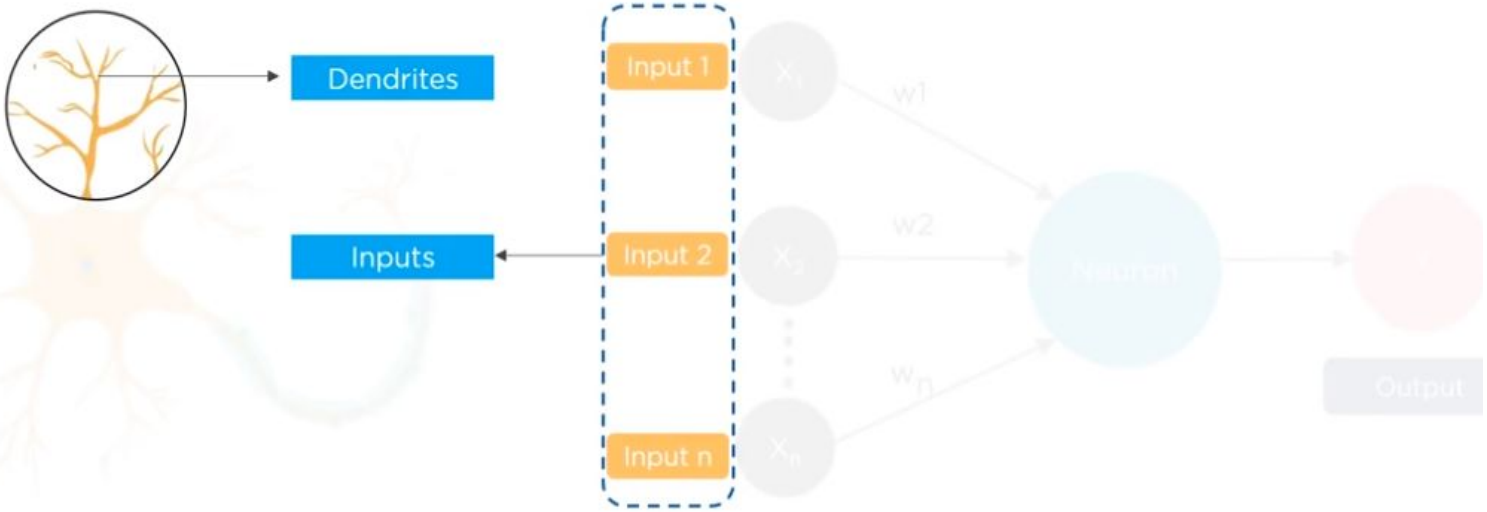
Neural Network has interconnected neurons that receive some inputs, processes those inputs in layers to produce the output.



Artificial Neuron

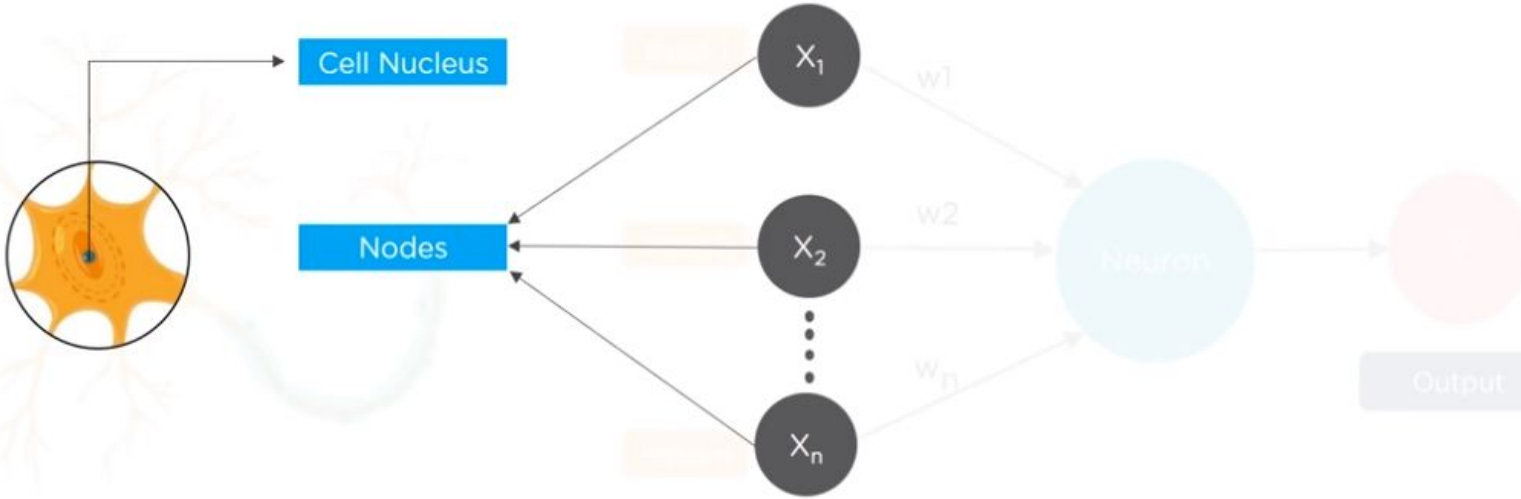
Biological Neurons Vs Artificial Neuron

Dendrites -------> Inputs



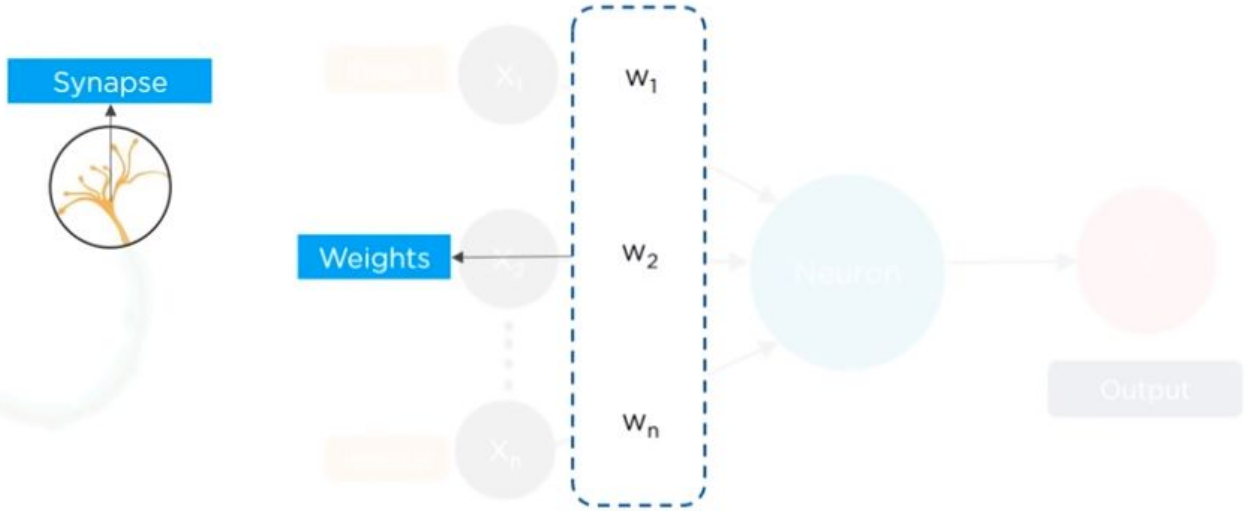
Biological Neurons Vs Artificial Neuron

Cell Nucleus -------> Nodes



Biological Neurons Vs Artificial Neuron

Synapse -------> Weights



Biological Neurons Vs Artificial Neuron

Axon -------> Output