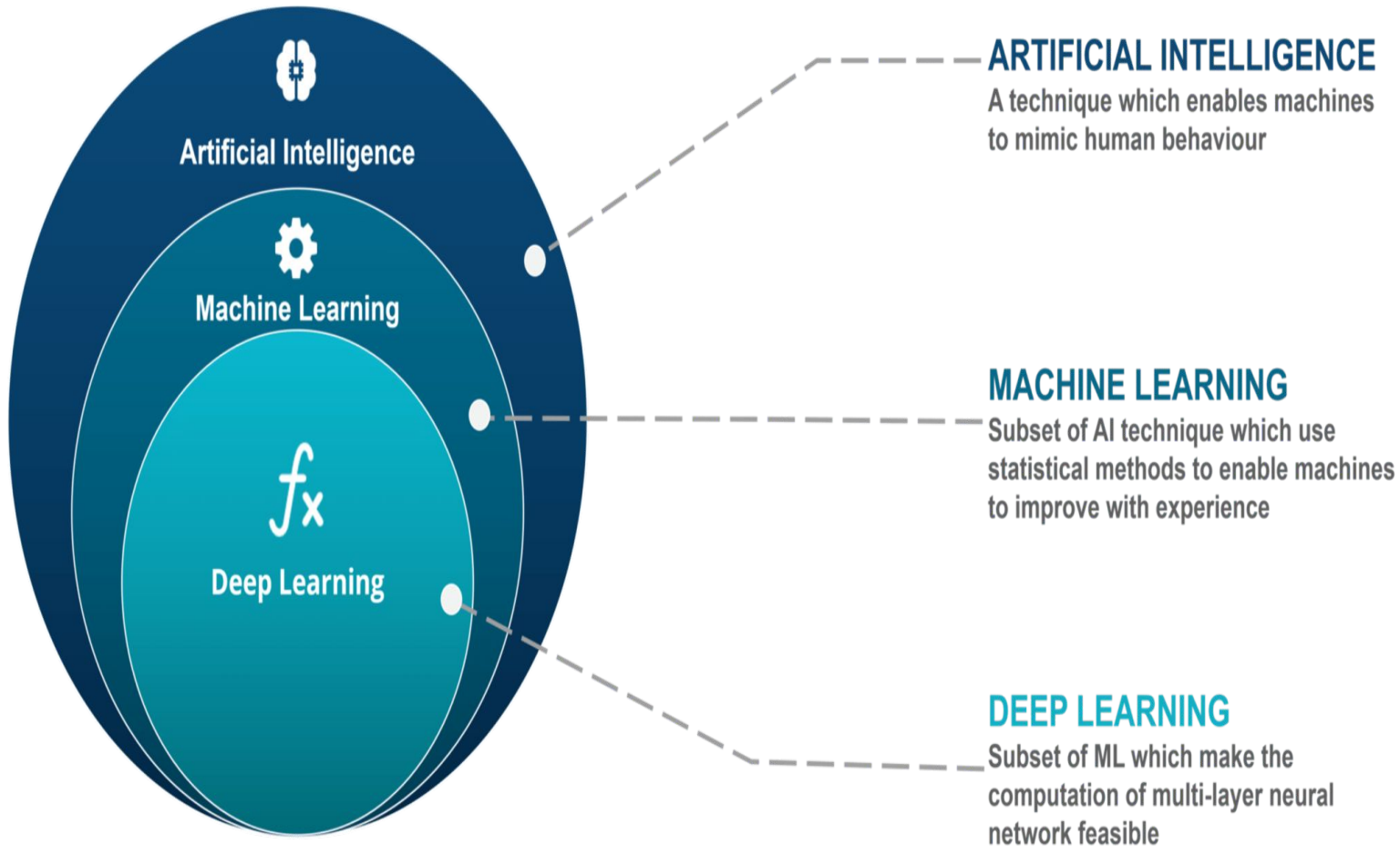


ML Vs DL Vs AI



INTERNSHIPSTUDIO



Deep Learning is a subset of **Machine Learning** which is used to achieve **Artificial Intelligence**.

Deep Learning Vs Machine Learning

Factors

Deep Learning

Machine Learning

Data Requirement

Requires large data

Can train on lesser data

Accuracy

Provides high accuracy

Gives lesser accuracy

Training Time

Takes longer to train

Takes less time to train

Hardware Dependency

Requires GPU to train properly

Trains on CPU

Hyperparameter Tuning

Can be tuned in various different ways.

Limited tuning capabilities

Why deep learning



How do data science techniques scale with amount of data?

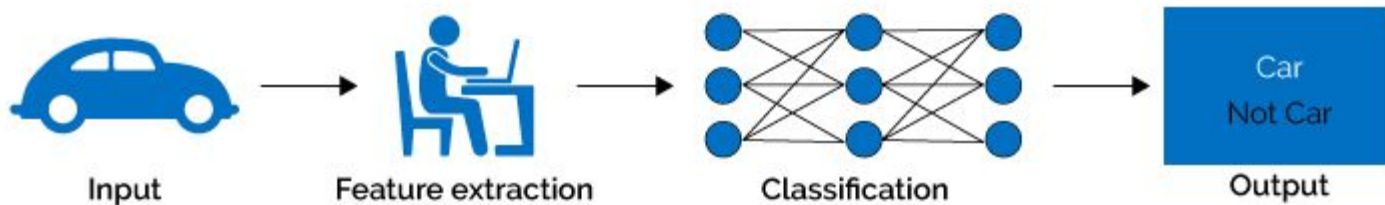
Deep Learning



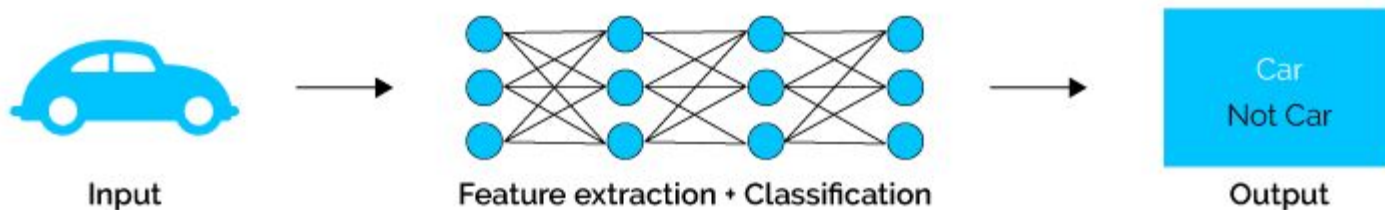
INTERNSHIPSTUDIO

- **Deep learning** is an AI function that mimics the workings of the human brain in processing data for use in detecting objects, recognizing speech, translating languages, and making decisions.
- **Deep learning** AI is able to **learn** without human supervision, drawing from data that is both unstructured and unlabeled.

Machine Learning



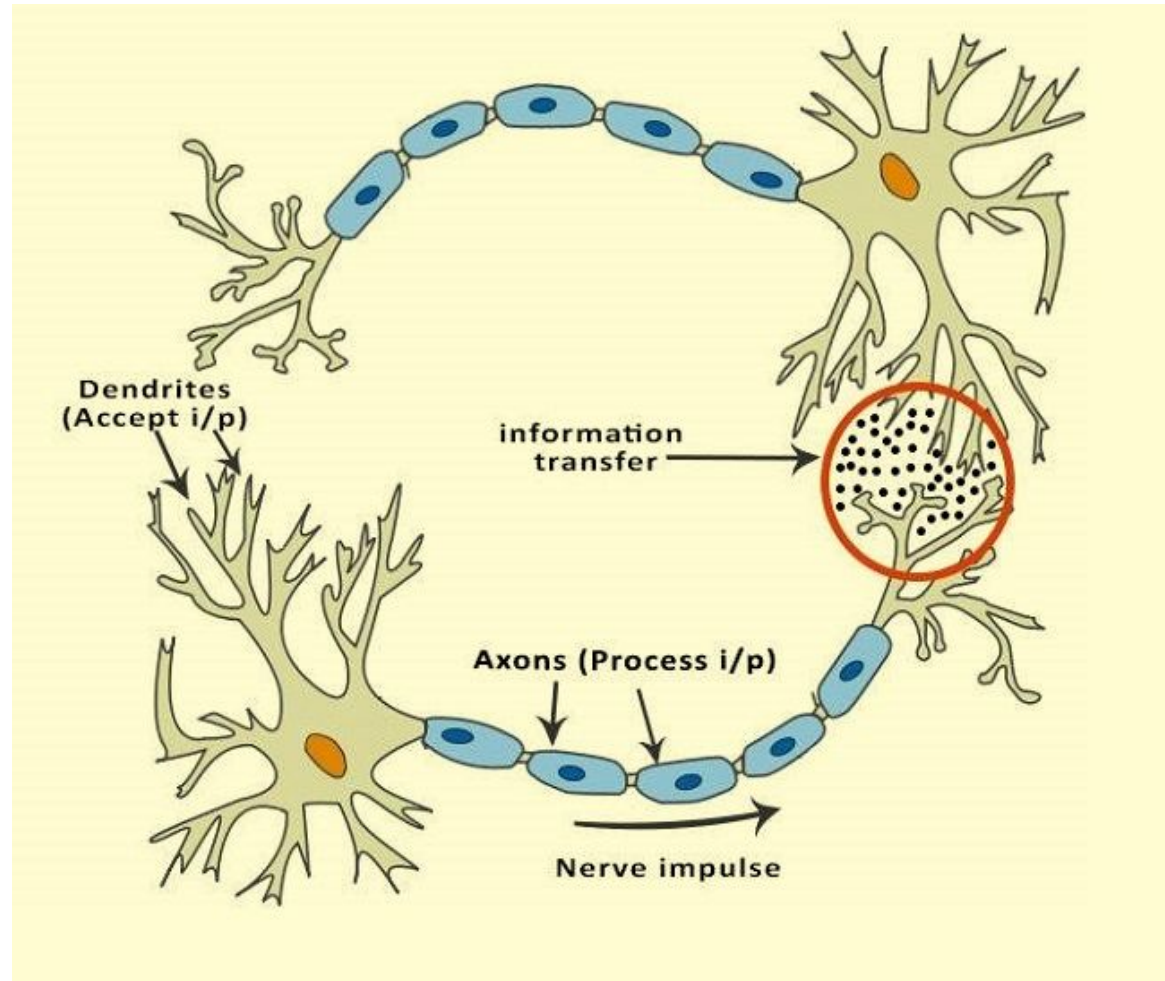
Deep Learning



Neurons within the brain



INTERNSHIPSTUDIO



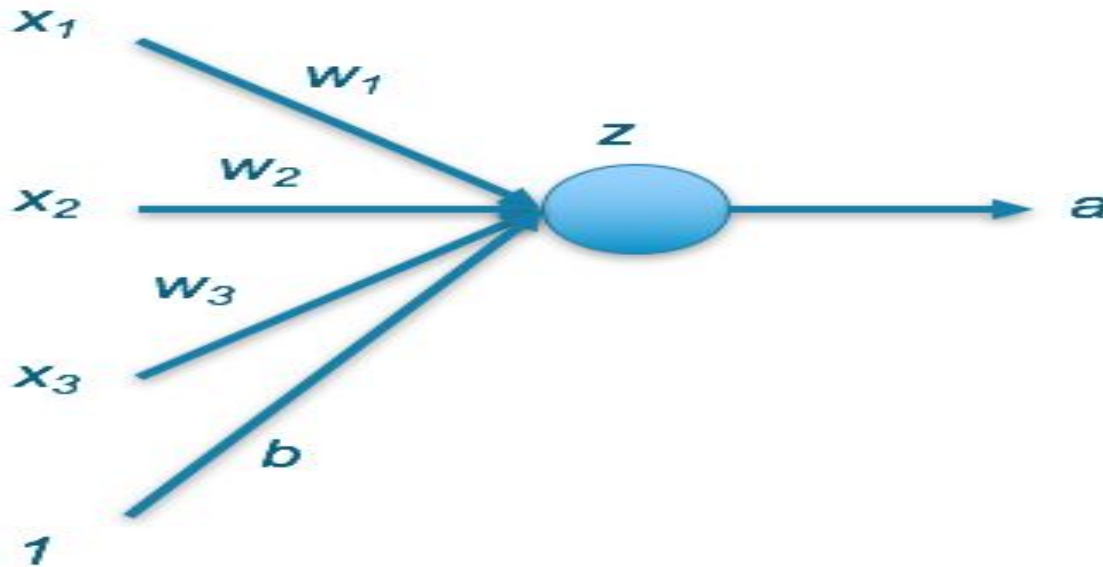
A typical human brain has as many as 10B neurons!

Artificial Neuron



INTERNSHIPSTUDIO

- An artificial neuron (also referred to as a perceptron) is a mathematical function.
- It takes one or more inputs that are multiplied by values called “weights” and added together.
- This value is then passed to a non-linear function, known as an **activation function**, for neuron’s output.



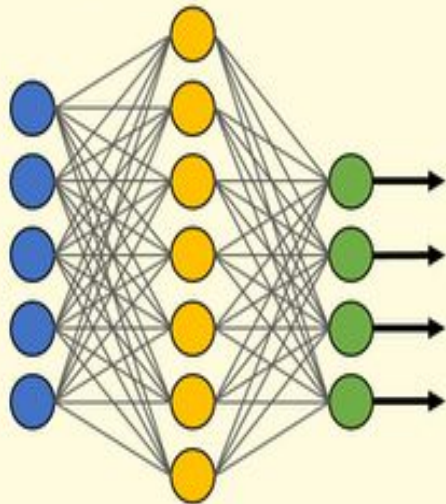
Artificial Neural Network



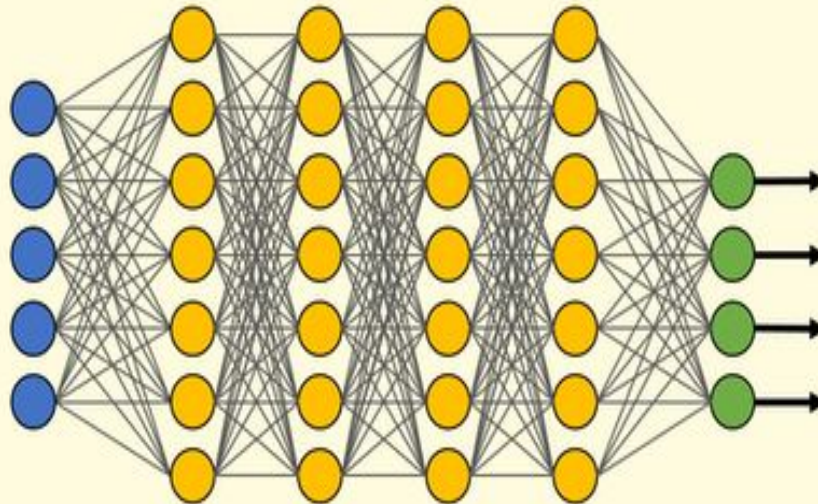
INTERNSHIPSTUDIO

- Neural networks can learn complex patterns using layers of **neurons** which mathematically transform the data
- The layers between the input and output are referred to as “hidden layers”
- A neural network can learn relationships between the features that other algorithms cannot easily discover.

Simple Neural Network



Deep Learning Neural Network



● Input Layer

● Hidden Layer

● Output Layer

How Deep Learning works?



INTERNSHIPSTUDIO

- The inspiration for deep learning is the way that the human brain filters information. Its purpose is to mimic how the human brain works to create some real magic.
- Deep Learning is a **machine learning** method. It allows us to train an AI to predict outputs, given a set of inputs. Both supervised and unsupervised learning can be used to train the AI.

