Neural networks

Neural networks are called so because they imitate the way brain neurons communicate with each other. They are a series of algorithms recognizing data patterns. Neural networks or ANNs(Artificial neural network)or SNNs(Simulated neural networks) are made of interconnected nodes that solve complex problems. It is the foundation for machine learning and deep learning.

“Deep” Learning is form of Machine learning.

Perceptron is the simplest form of an ANN. It has two layers: input and output. Input notes are fully connected to a node or multiple nodes in the next layer. Perceptron has no hidden layers.

Multi-layer Perceptron contains one or more hidden layers. Input layers receive data, hidden layers perform computations with weights and activation functions and output layer produces the final prediction.

Nodes/neurons receive input signals, perform computations, and produce an output signal.

Weight represents the significance of input values that improves the network’s ability to recognize patterns and make accurate predictions. Biases are additional parameters that allow the network to account for variations.

Activation functions add non-linearity to the neural network so the network can solve complex problems not just linear regression. Activation functions also decide whether that neuron should pass information forward or not.

Tab 2

Image processing Techniques: