General AI/ML

Unit 1: Intro to AI, ML and DL

1.2.2

Introduction to Deep Learning

Neural Networks & Perceptrons

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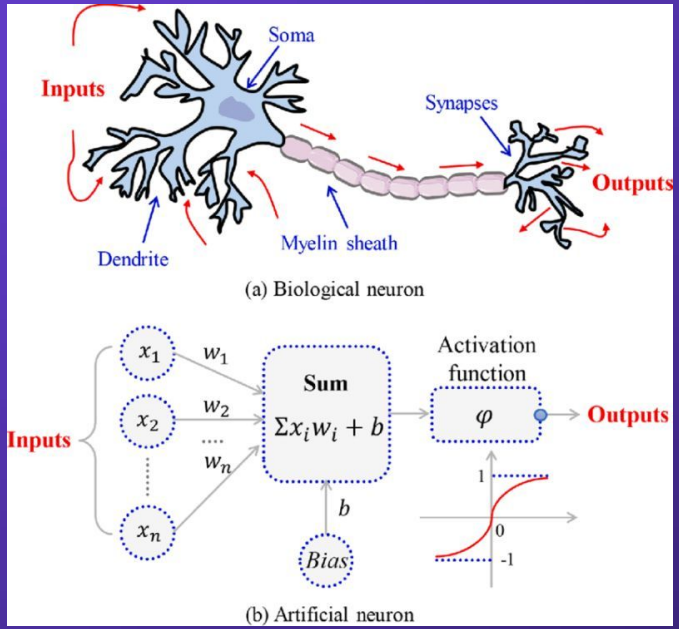
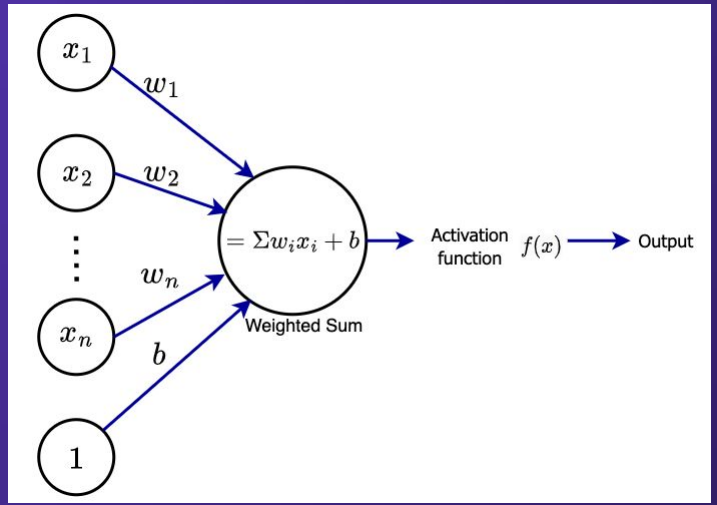
Neural Networks & Perceptrons



What is a Perceptron?

- A perceptron is the most basic unit of a neural network
- Its design takes cues from the structure of a biological neuron
- A perceptron receives multiple inputs, each associated with a weight representing its importance
- The weighted inputs are summed, and an activation function determines the output (often a binary 0 or 1)



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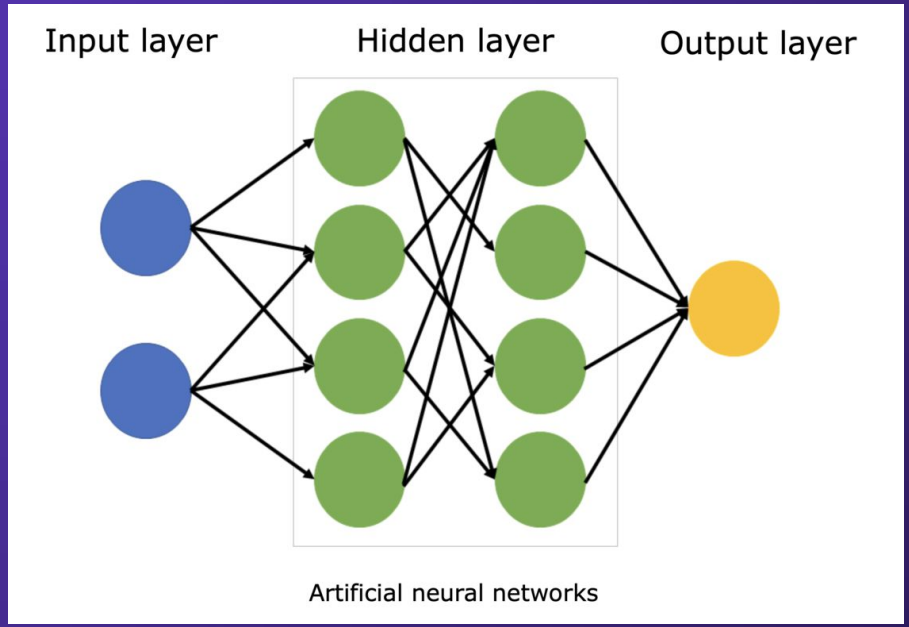
Limitations of Perceptrons

- Perceptrons can only learn linearly separable patterns
- Real-world problems often involve complex, non-linear relationships

Multilayer Perceptrons (MLPs)

- MLPs introduce additional layers of perceptrons called 'hidden layers'
- The use of non-linear activation functions in hidden layers allows MLPs to learn complex patterns
- MLPs can approximate a wide range of functions, making them versatile problem-solvers



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How a Neural Network Learns