Deep Learning Basics

What is Deep Learning?

Deep learning is a subset of machine learning that uses artificial neural networks to learn complex patterns from large datasets.

Its multi-layered architecture enables advanced learning capabilities similar to human perception.

Neural Network Structure

A neural network contains input, hidden, and output layers. Each layer processes information and passes it to the next.

Activation functions such as ReLU or sigmoid introduce non-linearity.

Training Deep Models

Training involves forward propagation, loss calculation, and backpropagation to update network weights.

Optimization techniques like Adam or SGD help models converge efficiently.

Applications of Deep Learning

Deep learning powers speech recognition, image classification, autonomous driving, and language processing.

Its ability to analyze unstructured data makes it essential in modern AI.