# Deep Learning

# What is Deep Learning

Deep Learning is collection of statistical techniques of machine learning for learning feature hierarchies that are actually based on artificial neural networks.

# Deep learning vs Machine learning

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|  | Deep Learning | Machine Learning |
| **Data** | Needs a big data | Performs well with a small to a medium dataset |
| **Hardware requirements** | Requires machines with GPU | Works with low-end machines |
| **Engineering peculiarities** | Needs to understand the basic functionality of the data | Understands the features and how they represent the data |
| **Training time** | Long | Short |
| **Processing time** | A few hours or weeks | A few seconds or hours |
| **Number of Algorithms** | Few | Many |
| **Data interpretation** | Difficult | Some ML algorithms are easy to interpret, whereas some are hardly possible |

# What is Neuron and Neural Networks, Types of Deep learning Networks

## Neuron

Neurons are nerve cells that send messages all over your body to allow you to do everything from breathing to talking, eating, walking, and thinking.

## Neural Networks

A neural network is a machine learning model inspired by the human brain, using interconnected nodes (neurons) to process data and learn patterns.

## Types of Deep Learning Networks

* **Perception**
* **Feed Forward Networks**
* **Multi-Layer Perception (ANN)**
* **Radial Based Networks**
* **Convolutional Neural Networks** (use for image data)
* **Recurrent Neural Networks** (use for text data)
* **Long Short-Term Memory Networks**