**Machine Learning (ML)** is a subfield of **Artificial Intelligence (AI)** that focuses on developing algorithms that allow computers to **learn from and make decisions based on data**, without being explicitly programmed for every task.

**Main Types of Machine Learning**

Machine Learning is broadly categorized into **three main types**, with a fourth hybrid type emerging:

| **Type** | **Description** | **Example** |
| --- | --- | --- |
| **1. Supervised Learning** | The model is trained on **labeled data** (data with input-output pairs). | Spam detection, house price prediction |
| **2. Unsupervised Learning** | The model works with **unlabeled data** and tries to find patterns or groupings. | Customer segmentation, topic modeling |
| **3. Reinforcement Learning** | The model learns by interacting with an environment and receiving **rewards or penalties**. | Game-playing AIs, robotics |
| **4. Semi-Supervised / Self-Supervised Learning** | Combines small amounts of labeled data with large amounts of unlabeled data. | Used in modern NLP models like GPT |