

Introduction to Machine Learning

Machine Learning (ML) is a subset of Artificial Intelligence (AI) that enables systems to learn and make decisions from data without being explicitly programmed. ML algorithms build mathematical models based on sample data to make predictions or decisions.

Types of Machine Learning:

1. Supervised Learning - The model learns from labeled data (e.g., classification, regression).
2. Unsupervised Learning - The model finds patterns in unlabeled data (e.g., clustering, association).
3. Reinforcement Learning - The model learns by interacting with an environment and receiving rewards.

Common Algorithms:

- Linear Regression
- Decision Trees
- Random Forest
- Neural Networks
- K-Means Clustering

Applications of Machine Learning:

- Image Recognition
- Speech Processing
- Fraud Detection
- Medical Diagnosis
- Recommendation Systems

ML is widely used in various industries, including healthcare, finance, marketing, and more.