Introduction to Machine Learning

Machine Learning (ML) is a subset of artificial intelligence (AI) that enables systems to learn from data, identify patterns, and make decisions with minimal human intervention. It is widely used in applications such as image recognition, natural language processing, and predictive analytics.

Key Types of Machine Learning:

1. Supervised Learning: Involves training a model on labeled data, where the input-output pairs are provided.

2. Unsupervised Learning: The model learns from unlabeled data, trying to find hidden patterns or intrinsic structures in the data.

3. Reinforcement Learning: The model learns by interacting with an environment and receiving feedback in the form of rewards or penalties.

Applications of Machine Learning:

- Healthcare: ML models help in diagnosing diseases and predicting patient outcomes.

- Finance: ML is used for fraud detection and algorithmic trading.

- Retail: Personalized recommendations and customer behavior analysis.

- Autonomous Vehicles: ML helps self-driving cars navigate and make decisions in real-time.

In conclusion, machine learning is a powerful tool that is transforming industries and solving complex problems by enabling systems to learn and improve from experience.