Introduction to Machine Learning

Chapter 1: Overview

Machine learning is a subset of artificial intelligence that focuses on the development of algorithms and statistical models.

What is Machine Learning?

Machine learning is a method of data analysis that automates analytical model building. It is a branch of artificial intelligence based on the idea that systems can learn from data.

Types of Learning

There are three main types of machine learning:

- Supervised Learning
- Unsupervised Learning
- Reinforcement Learning

Applications

Machine learning has numerous applications across various industries and domains.

Business Applications

- Customer segmentation
- Fraud detection
- Recommendation systems
- Predictive analytics

Academic Applications

- Research data analysis
- Pattern recognition
- Natural language processing
- Computer vision

Chapter 2: Algorithms

This chapter covers the fundamental algorithms used in machine learning.

Supervised Learning

Supervised learning algorithms learn from labeled training data.

Classification

(Font: 12pt, Bold, H3 style)

Classification algorithms predict discrete class labels.

Regression

Regression algorithms predict continuous numerical values.