

Machine Learning Book

Introduction to Machine Learning

Machine Learning is a subset of AI that focuses on building systems that learn from data.

1. Supervised Learning:

- Models learn from labeled data (Input X -> Output Y).
- Tasks: Regression and Classification.

2. Unsupervised Learning:

- Models learn from unlabeled data.
- Tasks: Clustering, PCA.

3. Reinforcement Learning:

- Agent learns from environment to maximize rewards.

Key Terms:

- Overfitting, Underfitting, Bias-Variance Tradeoff.

Data Engineering & Preprocessing

Data is the fuel for ML. Good data → Good models.

1. EDA: distributions, correlations.
2. Cleaning: missing values, outliers.
3. Feature Engineering: encoding, scaling.
4. Splitting: Train/Test, Cross-validation.