

A Guide To Machine Learning

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Part I.

Supervised Learning

Supervised learning methods can be split into two types: regression problems and classification problems.

In all supervised learning methods we have a **training set**, which is a collection of data which we already know the right answers for.

1. Regression

Regression methods are used for predicting continuous data.

1.1. Cost functions

A popular cost function is the **mean squared error**.

$$E = \frac{1}{2n} \sum_{i=1}^n (f(x_i) - y_i)^2 \quad (1)$$

1.2. Linear regression

1 variable

More than 1 variable

1.3. Logistic regression

1 variable

More than 1 variable

2. Classification

Classification methods are used for predicting discrete data. We try to group data into categories.

2.1. PCA - Principal Component Analysis

Dimensionality reduction

Part II.

Unsupervised Learning

3. Clustering

3.1. K-means clustering

Part III.

Reinforcement Learning