

## Machine Learning

## Introduction

Statistical Learning

Curse of Dimensionality

PCA

Regression Function  $f(x)$ 

Linear Regression

Correlation

Overfitting

Regularization

Bias Variance TradeOff

Metrics for Evaluation

Model Validation

Tree Based Method

SVM

GA

&gt; Discrete Structures

&gt; Web Applications

&gt; Probability Theory

&gt; Principles of Programming languages

&gt; Database Design and Development

&gt; Data Structures

&gt; Computer Vision

&gt; Data Visualization and Communication

&gt; Linear Algebra

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Next &gt;

# Unsupervised Learning

- With unsupervised learning there is no outcome variable, just a set of predictors (features) measured on a set of samples.
- Objective is more fuzzy: find groups of samples that **behave similarly**, find features that behave similarly, find linear combinations of features with the most variation.
- Difficult to know how well you are doing.
- Different from supervised learning but can be useful as a **pre-processing** step for supervised learning.
- Key difference: predict the cluster of a data record without predicting an explicit label

