Machine Learning

Unit 1 Syllabus

Fundamentals of Machine Learning: Introduction to Machine Learning (ML), Different types of Machine Learning, Machine Learning Life Cycle: Data Discovery, Exploratory Analysis: Data Preparation, Model Planning, Model Building, Model Evaluation, Real World Case Study. Foundation of ML: ML Techniques.

Statistics Learning and Exploratory Data Analysis: Mean Median, Mode, Correlation, Covariance, Quartile, Maximum Likelihood, Bayesian Inference, Bias, Variance, Distance metrics: Euclidean Distance, Manhattan Distance, Gaussian (or Normal) Distributions, statistical hypothesis testing. Missing Value treatment, Outlier Detection, Feature Engineering, Graphs and Plots.

Supervised Learning with Regression and Classification techniques -1: Linear Regression, Multiple Regression, Bias-Variance Dichotomy, Model Validation Approaches, Evaluation of the performance of an algorithm: Mean Squared Error, Root Mean Squared Error.

Text Books

1. Kevin P. Murphy, Machine Learning: A Probabilistic Perspective (Adaptive Computation and Machine Learning series) Illustrated Edition, MIT Press, 2012.

2. Mehryar Mohri. T, Foundations of Machine Learning (Adaptive Computation and Machine Learning series), MIT Press, 2012.