Machine Learning with MATLAB

Prerequisites

MATLAB Fundamentals

Day 1 of 2	
Importing and Organizing Data	**Objective:** Bring data into MATLAB and organize it for analysis, including normalizing data and removing observations with missing values. Data types Tables Categorical data Data preparation
Finding Natural Patterns in Data	**Objective:** Use unsupervised learning techniques to group observations based on a set of explanatory variables and discover natural patterns in a data set. Unsupervised learning Clustering methods Cluster evaluation and interpretation
Building Classification Models	**Objective:** Use supervised learning techniques to perform predictive modeling for classification problems. Evaluate the accuracy of a predictive model. Supervised learning Training and validation Classification methods

Day 2 of 2	
Improving Predictive Models	**Objective:** Reduce the dimensionality of a data set. Improve and simplify machine learning models. Cross validation Hyperparameter optimization Feature transformation Feature selection Ensemble learning
Building Regression Models	**Objective:** Use supervised learning techniques to perform predictive modeling for continuous response variables. Parametric regression methods Nonparametric regression methods Evaluation of regression models

Day 2 of 2	
Creating Neural Networks	**Objective:** Create and train neural networks for clustering and predictive modeling. Adjust network architecture to improve performance. Clustering with Self-Organizing Maps Classification with feed-forward networks Regression with feed-forward networks