

ELEC 5970, CRN: 18355

ELEC 6970, CRN: 18356

Special Topics: Applied Statistical and Machine Learning

Spring 2023

Instructors: Yin Sun and Rui Chen

This course is intended for students interested in employing statistical and machine learning methods for data analysis, regression, classification, and computer vision. We will teach basic Python programming skills and mentor students to tackle real-world data science problems through course projects and field visits.

Lecture Topics:

Part 1: Statistics Methods for Data Analysis

Introduction to Statistical Learning
Data Collection, Cleansing, and Visualization
Experimental/Survey Design
Statistical Hypothesis Testing
Linear regression

Part 2: Machine Learning Methods

Introduction to Machine Learning
Classification and Regression Algorithms
 K-Nearest Neighbors
 Support Vector Machines
 Decision Trees and Random Forests
Neural Networks
Training Neural Networks with TensorFlow
Image Segmentation and Object Detection



Prerequisites:

Calculus and linear algebra. Basic Probability and Statistics.

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