

Lecture 1

Techniques

- Overview
- The Data Science Workflow
- Best Practices

Data Science Practice

- Introduction to Data Science
- Causal Analysis in Display Advertising

Homework

- Reading

Lecture 2

Techniques

- Machine Learning Primer

Data Science Practice

- Elements of a Time Series
- Time Series Forecasting 1/2

Homework

- Reading

Lecture 3

Techniques

- Decision Trees
- Random Forests

Data Science Practice

- Introduction to Weka

Homework

- Time Series Forecasting
- Install Weka

Lecture 4

Techniques

- Ensembles, Random Forests
- Clustering

Data Science Practice

- Evaluating Model Performance, Part I

Homework

- Reading

Lecture 5

Techniques

- Clustering review
- Hands on clustering
- Evaluating clusters

Data Science Practice

- Evaluating Model Performance, Part II
- Dealing with class imbalance

Homework

- Clustering

Lecture 6

Techniques

- Data Wrangling
- Support Vector Machines (SVMs)

Data Science Practice

- Kaggle

Homework

- Data Preparation

Lecture 7

Techniques

- Support Vector Machines, reviewed
- Data Wrangling, continued
- Feature selection

Data Science Practice

- How they won it

Homework

- Introduce course project
- How they won it...

Lecture 8

Techniques

- Attribute selection, creation – deep dive

Data Science Practice

- Ensemble Learning

Homework

- Feature selection

Lecture 9

Techniques

- A/B Testing, experiment culture, dealing with the HIPO
- Open topic, selection based on input in Lecture 8

Data Science Practice

- Creating Gold Data Sets

Homework

- Running experiments

Lecture 10

Techniques

- Neural Networks
- Deep Learning

Data Science Practice

- Hands on Ensembling