

PART 1 - THE MECHANICS OF MACHINE LEARNING

- Exploring data systematically
 - visualization
 - investigation
- The nuts and bolts of machine learning
- Regression with a single feature
- Regression with multiple features
- Automating regression - a closer look at model hyperparameters
- Non-linear regression
- Logistic regression with 2 features
- Logistic regression with multiple features
- Non-linear logistic regression (svms and neural networks)

PART 2 - THE SCIENCE OF MACHINE LEARNING

- Models, parameters and hyper-parameters
- Training, validation, and test datasets
- Validation Curves
- K-fold cross validation
- Measuring model bias and variance

PART 3 - THE ART OF MACHINE LEARNING

- Feature compression
- Feature engineering
- Decision trees
- Ensemble of models - Decision trees, random forests, aggregation of results

PART 4- SELECT TOPICS IN MACHINE LEARNING

- Similarity and clusterings
- Profiling and anomaly detection
- Learning from text
- Recommender Systems

