

Machine Learning Fundamentals

MLFund - Version: 1

 4 days Course

Description:

In this 4-day course you will learn how to use several machine learning algorithms. We will start with simple linear regression and work our way towards deep neural networks. We will also learn how to handle our data and create efficient data sets that will help our machine learning process be faster and better.

Intended audience:

This course is intended for Software engineers as well as decision makers in the organization.

Prerequisites:

Knowledge and experience in Python

Objectives:

Understand the purpose of each machine learning algorithm.
Use Several Machine learning algorithms.
Avoid common pitfalls
Create efficient Data Sets

Topics:

Module 01 - What is Machine Learning?

- What is machine learning good for
- Where is machine learning used
- Terminology

Module 02 – Regression

- Linear Regression
- Calculating and reducing Loss
- Intro to Pandas
- Intro to TensorFlow

Module 03 – Generalization

- Overfitting and how to avoid it
- Creating your data sets

Module 04 - Feature Engineering

- Mapping Numerical and categorical values
- Multi and One hot encoding
- Scaling
- Binning
- Data Verification

Module 05 - Non Linear Features

- Feature Crosses

Module 06 – Regularization

- Measuring Complexity
- L2 regularization
- Lambda

Module 07 - Logistic Regression

- Understanding Logistic Regression
- Logistic Regression Loss
- Regularization

Module 08 – Classification

- Thresholding
- Expanding the true false notion
- Accuracy, Precision and Recall

Module 09 – Sparsity

- Handling huge sparse vectors
- L1 regularization

Module 10 - Neural Nets

- Non Linear Problems
- Hidden Layers
- Activation Functions
- Common Failures
- Regularization
- MultiClass Neural Networks
- SoftMax

Module 11 - Embeddings

- Collaborative Filtering
- Reducing Dimensions
- Wotd2Vec