

# Sela.

MLFund

## Machine Learning Fundamentals

college@sela.co.il

03-6176666





# 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

# Sela.



## Module 11 - Embeddings

- Collaborative Filtering
- Reducing Dimensions
- Word2Vec