

Summer Training School in Python

Lecturer: Sivo Daskalov, MPhil
Primary location: 207TB

3-13 June, 2019
Technical University of Varna

Program

Day 1 (03.06). **Introduction to Python and Statistics** 10:00 – 17:00
Topic: *Introduction to Python. Statistics* - basic definitions and commonly performed operations.
Library: *numpy* and *pandas* - ndarrays and various utility functions, dataframes, slicing, column-wise operations

Exercise 1: Generation of a synthetic dataset with added noise

Day 2 (05.06). **Machine Learning with Python** 10:00 – 17:00
Topic: *Machine Learning. Commonly used models and their hyperparameters.*
Library: *scikit-learn* - machine learning basics, classification versus regression, cross-validation

Exercise 2: Building CV model for the regression problem in Exercise 1

Day 3 (07.06). **Image Processing with Python** 10:00 – 17:00
Topic: *Image Processing. Various filters and noise removal, thresholding.*
Library: *opencv* - image preprocessing and feature extraction

Exercise 3: Classification of images in the digits DB or some DICOM medical DB

Day 4 (11.06). **Figure plotting in Python** 10:00 – 17:00
Topic: *Figure plotting - types of plots and representations.*
Library: *matplotlib* - plotting of various figures

Exercise 4: Present results from previous tasks in a meaningful manner

Day 5 (13.06). Presentations 10:00 – 17:00
Project presentations