

The Python Quants GmbH · Rathausstr. 75-79 · D-66333 Voelklingen



For Python Quants

Python Bootcamp

– *Overview and Contents* –

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FOR PYTHON QUANTS BOOTCAMP – PYTHON FOR ALGORITHMIC TRADING

Overview: This 3-day intensive bootcamp teaches Python programming for Finance from scratch. It also covers techniques and Python packages to formulate and backtest algorithmic trading strategies. In addition, it teaches you how to deploy algorithmic trading strategies in real-time and in automated fashion.

Instructor: Yves has a Ph.D. in Mathematical Finance and is the founder and CEO of The Python Quants (<http://tpq.io>) and The AI Machine (<http://aimachine.io>). He is also Adjunct Professor of Computational Finance at the University of Miami. Yves is the author of the books Artificial Intelligence in Finance (current project), Python for Finance (2nd ed.), Derivatives Analytics with Python and Listed Volatility & Variance Derivatives (see <http://books.tpq.io>). He lectures on Python for Algorithmic Trading and Computational Finance at the CQF Program. Yves is the director of the first University Certificate about Python for Algorithmic Trading (<http://certificate.tpq.io>). Yves organizes, among others, the Python for Quant Finance Meetup in London (<http://pqf.tpq.io>) as well as similar Meetup groups in Berlin, Frankfurt, Paris and New York.

Prerequisites: Participants should should bring their own notebook and should have installed a Python 3.6 or 3.7 distribution, such as based on Miniconda (<https://conda.io/en/master/miniconda.html>), with the major tools and packages from the scientific stack, such as IPython, Jupyter, NumPy, pandas, scikit-learn and matplotlib available.

Dr. Yves J. Hilpisch
The Python Quants GmbH

DAY 1 – PYTHON INFRASTRUCTURE & BASICS

Python Level: beginner, no prior experience required

Topics: during this day, participants learn the basics of Python programming for data analysis and for financial analysis; tools covered include IPython and Jupyter Notebook; topics covered include data types and structures, control structures, basic algorithms, basic finance with Python, NumPy & pandas, basic visualization

Objectives: participants should be able to use important tools for interactive Python development, work with in-memory data and data files, use basic methods of handling data types and structures, to visualize data and to implement simple (financial) algorithms

DAY 2 – TRADING STRATEGIES

Python Level: intermediate, knowledge from day 1

Topics: during this day, participants learn to work with financial time series data making use of the pandas package for Python; they also learn to implement statistical methods such as OLS regression and to make use of more advanced machine learning and deep learning algorithms based on the scikit-learn package for Python; this day makes use of the Oanda trading platform, its algorithmic trading REST API as well as the tprogoa Python package for the use of the API with Python; topics covered include financial time series, visualization, simple trading strategies, algorithmic trading strategies based on machine & deep learning, backtesting of such trading strategies

Objectives: participants should be able to handle financial time series data efficiently, to visualize such data and associated statistics, to apply methods from statistics and machine learning to financial time series, to backtest algorithmic trading strategies (including train-test splits)

DAY 3 – AUTOMATION

Python Level: intermediate, knowledge from day 1 and day 2

Topics: during the third day, participants learn how to work and deal with real-time, streaming data, how to formulate online algorithms for algorithmic trading and how to automate the deployment of such strategies; topics covered include real-time (tick) data, socket communication, online algorithms, automated execution of algorithmic trading strategies; during this day the Oanda trading platform in combination with the REST API for algorithmic trading is again used to implement the single elements relevant for deployment in a realistic real-time environment

Objectives: participants should be able to deal with streaming data, formulate online trading algorithms, place buy and sell orders programmatically, write code to deploy an algorithmic trading strategy in automated fashion, execute algorithmic trading strategies on the Oanda trading platform