VU VRIJE UNIVERSITEIT AMSTERDAM | Universiteit van Amsterdam

Introduction

KEY POINTS: (A) Quant.

What is a Quant?

Quants build computational models of the world. Specifically, that could be about financial instruments or markets and Quants apply the scientific method to finance.

Program Overview

This program is accessible to anyone passionate about using advanced data analytics to make sense of financial data.

TERM ONE:

0.0.1 Courses:

Fundamentals of Quantitative Finance, apply quantitative methods that are practiced in financial industry including regression, optimization, and trading signal generation.

0.0.2 Projects:

Trading with Momentum

Learn to implement a trading strategy on your own and test to see if it has the potential to be profitable.

Breakout Strategy

Implement the breakout strategy, find and remove outliers, and test to see if it can be a profitable strategy.

Smart Beta and Portfolio Optimization

Build a smart beta portfolio against an index and optimize a portfolio using quadratic programming.

Multi-factor Model

Research and implement alpha factors, build a risk factor model. Use alpha factors and risk factors to optimize a portfolio.

TERM TWO:

0.0.3 Projects:

NLP on Financial Statements

NLP Analysis on 10-k financial statements to generate an alpha factor. (Use machine learning algorithms to generate trading signals.)

Sentiment Analysis with Neural Networks

Build a deep learning model to classify the sentiment of messages. (Use natural language processing to analyze financial statements and apply recurrent neural networks to analyze new data.)

Combining Signals for Enhanced Alpha

Build a random forest to generate better alpha. (Use advanced techniques to combine several trading signals together to optimize a portfolio.)

Backtesting

Build a backtester using Barra data. (Backtesting practice, which is a realistic simulation designed to evaluate the effectiveness of a strategy.)