

Artificial Intelligence and Alternative Data in Asset Management

Master Thesis Supervision
of
Students of the LMU München
by
Benjamin Moritz

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Hello. I am looking for students who want to write their master thesis in the field of financial markets and asset management. If you are interested feel free to send me an email to mail@benjaminmoritz.de.

Exemplary Topics for 2022 Projects

Topic 1: Tactical Asset Allocation based on single topics

Tactical Asset Allocation based on Signals from Alternative Data (e.g. New Corona Cases or News). Topics can be e.g. inflation, corona, ESG, climate, politics

Topic 2: News-driven Stock Selection

Stock selection based on the sensitivity of individual stocks to Alternative Data (e.g. New Corona Cases or News). Topics can be e.g. inflation, corona, ESG, climate, politics

Topic 3: Factor Timing

Tactical Allocation between US-Stocks factors (Value, Momentum, Size, ...)

Topic 4: Volatility Managed Portfolios with AI and macroeconomic data

Stock market timing based on risk forecasts. Usage of AI and macroeconomic data for forecasting

Topic 5: News-based Business Cycle Nowcasting

Estimation of the current state of the economy using news. Estimation of time-varying topic models

Topic 6: Deep Learning for Stock Selection

Comparing different deep learning methods for stock selection strategies

Topic 7: Comparison of Tree-based methods

Comparison of different random forest methods (e.g. random forest, enriched random forest, local linear forest, extremely randomized trees) from python and R and their application in forecasting single stock returns

Topic 8: Forecasting crypto returns

Time-Series Forecasting of some cryptocurrencies with technical and economic data

Information on Benjamin Moritz

Industry

Benjamin Moritz is an Executive Partner and part of the 2018 founding team of HQ Asset Management (HQAM). HQAM is a quantitative and scientific-driven asset management firm, based in Germany, combining Finance with Artificial Intelligence and Technology to build better products. The edge of HQ Asset Management is their own **innovative investment process platform** which features a central data warehouse with alternative data sources, methods from artificial intelligence, cutting-edge technology, high performance cloud computing and an extensive reporting pipeline to get advanced and robust investment processes for stock selection and asset allocation.

Benjamin joined the Quantitative Asset Management industry in 2007. He has extensive industry experience in research and portfolio management. He was responsible for developing solutions for **strategical asset allocation, tactical asset allocation, risk management, stock selection, factor investing and portfolio optimization.**

Academia

Beside the job Benjamin did his PhD studies from 2012 to 2018. He holds a **PhD in Statistics from Ludwig-Maximilians-University of Munich (LMU)** where he focused on the **application of machine learning to stock selection and textual analysis to asset allocation.** In 2015 Benjamin and his co-author won the **Best Paper Award at the Annual Meeting of the German Finance Association** for their paper on introducing machine learning techniques to stock selection. In 2021 Benjamin has won the first **Advancement Award for Artificial Intelligence in the Financial Sector** of Plexus Investments for his PhD Thesis. **Since 2017, Benjamin is advising students from LMU Munich, TU Munich, University of Cologne and the University of California, Berkeley in their thesis and industry projects.**

Business skills

Benjamin worked in large companies, co-founded a start-up and led students in academic projects. **He managed both large cross-functional projects and small teams of students. He has experience in developing ideas from vision to pitch to MVP and to production.**

More Information: <https://benjaminmoritz.de/research>

Information on past master thesis and industry projects

LMU Munich

2020 Master Thesis

Title: A comprehensive analysis of the use of deep learning models for forecasting the cross-section of stock returns

2018 Master Thesis

Title: Forecasting Financial Time Series with Deep Learning

University of California, Berkeley

<https://www.hqam.com/de/artikel/steady-innovation-is-the-key-for-success>

Past industry projects included:

- AI-based financial dictionary estimation based on US company financial statements
- Monitoring the state of the economy with dynamic LDA models (Text Analysis)
- Textual Analysis on Financial Statements to Forecast Single Stock Returns with ESG Verbiage
- Forecasting stock market returns using Elastic Net, Random Forest, XGBoost or Deep Learning
- Forecasting stock market returns using Ensembles of Methods
- Forecasting stock market returns focusing on the value added of sophisticated Data Engineering
- Forecasting single stock returns using Random Forest, XGBoost or Deep Learning
- Relation between single stock returns and amazon ratings and reviews
- Comparing AutoML Systems for forecasting stock market returns (eg auto-sklearn, TPOT)

TU Munich

2022 Master Thesis

Title: Machine learning based forecasting of the cross-section of stock returns and transaction costs

2022 Master Thesis

Title: Analysis of various deep learning algorithms and their application to the cross-section of U.S. stocks

University of Cologne

2022 Industry Project

Title: Thematic Investing with textual analysis