BALINT GERSEY

Head of Quantitative Research

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C permit

EXPERIENCE

Head of Quantitative Research

2Xideas

12/2023 - Present Küsnacht

- As Head of Quantitative Research, I directly report to the CEO, and provide strategic investment decisions and recommendations.
- Contribute to the design, implementation, and enhancement of our alpha model using advanced machine learning algorithms and statistical models.
- Lead the development and refinement of diverse quantitative portfolio construction algorithms to optimize a variety of investment strategies.
- Lead the development and implementation of cutting-edge portfolio construction algorithms leveraging convex optimization and mixed integer quadratic programs.
- Proficient in implementing optimization models using industry-standard libraries such as CVXOPT, CVXPY, and MOSEK.
- Made substantial contributions to the design of our backtesting engine and performance monitoring system.
- Actively engage in cutting-edge academic research, seamlessly integrating the latest breakthroughs in mathematical finance, optimization techniques, statistics, and machine learning.
- Closely collaborate with cross-functional teams, including the CEO and CTO, portfolio managers, senior software engineers, data engineers, quantitative researchers and domain experts.

Data Scientist & Quantitative Researcher

2Xideas

03/2022 - 11/2023 Küsnacht

- Extensively collaborated in the conceptualization, execution, and maintenance of our in house asset pricing model.
- Designed and implemented a range of impactful quantitative investment strategies.
- Leveraged my analytical skills to explore and manipulate extensive and varied datasets with over 200 raw factors, contributing to idea generation and alpha research.
- Utilized Python, NumPy, Pandas, and SQL for software development. Ensured adherence to the Test-Driven Development (TDD) approach and SOLID principles.

PhD student and Scientific Assistant

ETH Zürich

09/2018 - 02/2022 Zürich

- Published a top-tier journal paper on an efficient algorithm providing guarantees for the accuracy of numerical approximations of conditional expectations. This paper has been accessed over 1300 times.
- Contributed to the development of trustworthy solutions in the field of AI/ML by providing numerical guarantees for a computational problem lying at the heart of different applications in various fields.
- Extended the replicating portfolios approach to neural networks for assessing the risk of a portfolio of assets and liabilities.
- Implemented a deep learning based discrete time filtering algorithm capable of efficiently solving high-dimensional, non-linear problems with general stochastic noise.
- Lectured master students in mathematical finance.

SUMMARY

With over 5 years of dedicated experience in quantitative research, I specialise in mathematical modelling of financial markets, emphasising statistical learning algorithms for applications in quantitative equity portfolio management, alpha generation, risk management, and derivative pricing. Proficient in software engineering, machine learning, computational statistics, and quantitative finance, my skill set is complemented by strong communication skills developed through academic teaching.

LANGUAGES

French
Native

English
Native

German
Proficient

Swiss German
Proficient

Hungarian
Native

PUBLICATIONS

Computation of Conditional Expectations with Guarantees

Springer, Journal of Scientific Computing

Patrick Cheridito and Balint Gersey

02/2023

https://link.springer.com/article/10.1007/s10915-023-02130-8

We derive an expected value representation of the minimal mean squared distance which in many applications can efficiently be approximated with a standard Monte Carlo average. This enables us to provide guarantees for the accuracy of any numerical approximation of a given conditional expectation.

EDUCATION

PhD in Mathematics

ETH Zürich

09/2018

- My research focus spans a diverse range of disciplines, encompassing machine learning, stochastic finance, quantitative risk management, actuarial mathematics and mathematical optimization.
- I commit to completing my PhD studies during my free time, showcasing my unwavering commitment to academic excellence and personal growth.

Master of Advanced Studies -- Part III of the Mathematical Tripos

University of Cambridge

10/2017 - 07/2018

- Graduated with a first-class honour.
- Specialising in mathematical statistics and financial mathematics.
- I was elected a Senior Scholar of Fitzwilliam College for my distinguished performance in the examinations.

Master I in Mathematics

Université Pierre et Marie Curie -- Sorbonne University

09/2016 - 06/2017

- Laureate of the prestigious Paris Graduate School of Mathematics (PGSM) scholarship.

Bachelor in Mathematics

Université Libre de Bruxelles

09/2013 - 06/2016

- Minor in Theoretical Physics.
- Secured the highest academic standing in my graduating class.

PASSIONS

Sports have taught me high precision, determination and willingness to never give up.

Reading nurtures personal growth, fostering lifelong learning and curiosity.

Keenly interested in pursuing additional professional qualifications, including the CFA.

SKILLS

Quantitative Research

Alpha Signal Generation

Asset Management

Quantitative Risk Management

Portfolio Management

Computational Statistics

Machine Learning Algorithm

Deep Learning

Mathematical Optimization

Convex Analysis

Stochastic Analysis

Stochastic Optimal Control

Financial Mathematics

Econometrics

Python **R** **C++** **SQL**

Pandas **NumPy** **SciPy**

statsmodels **Scikit-Learn** **Keras**

TensorFlow **PyTorch** **Matplotlib**

Seaborn **Plotly** **MOSEK**

CVXOPT **CVXPY** **Git / GitLab**

Docker **Azure** **CI / CD pipeline**