

JOHANNES WILHELM

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EDUCATION

RWTH Aachen University 04/2019 - present
M.Sc. Computer Science, German GPA: 1.4/1.0 - top 10% expected 03/2026
Thesis: Efficient Higher-Order Sobolev Training via Randomized Hessian Sketching
B.Sc. Computer Science, 1.5/1.0 - top 10% 09/2022

WORK EXPERIENCE

IRTG Modern Inverse Problems & Forschungszentrum Jülich 12/2023 - 10/2024
Student Research Assistant Aachen, GER

- Improved the execution engine of L2L, a gradient-free optimization framework, enhancing parallel execution performance for large-scale simulations
- High-performance computing at Jülich Supercomputing Center

Postera Capital 05/2021 - 12/2021
Quantitative Research Analyst Düsseldorf, GER

- Continued development of my crypto ML trading system in an industry setting.
- Extended pipelines for statistical analysis and feature engineering.
- Designed and trained LSTM-based time-series models and performed systematic backtesting.

SELECTED PROJECTS & RESEARCH

Master's Thesis:

- Designed and implemented second- and third-order derivative supervision using Hessian-vector products, auto-diff and tensor sketching
- Applied randomized numerical linear algebra (RandSVD, sketching) to select informative curvature directions
- Built GPU-accelerated, vectorized experiment pipelines enabling large-scale training and evaluation using JAX, Equinox and Optax
- Achieved significant improvements in sample-efficiency and generalization for option pricing models.

Automated Crypto Trading System

- Built an end-to-end ML trading system: data aggregation & preprocessing → feature engineering → modeling → backtesting → live execution.
- Trained time-series classification models, implemented evaluation workflows and exchange API integration.
- This project led to my role as a Quantitative Research Analyst at Postera Capital.

Publications & Writing

- Master's thesis paper submission in preparation.
- Published Bachelor's thesis (augmented reality, unrelated field)
- Technical blog articles on ML, optimization and time-series modeling: johannes-wilhelm.com

SELECT TECHNICAL SKILLS

Programming Languages Python, C/C++, C#, Java, Dart
Tools & Frameworks JAX, PyTorch, Tensorflow, scikit-learn, NumPy, pandas, OpenCV
Git, Unix/Bash, HPC workflows
Other Unity, GPU-/shader programming, L^AT_EX, SQL