JOHANNES WILHELM

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EDUCATION

RWTH Aachen University 04/2019 - 03/2026
M.Sc. Computer Science 03/2026
German grade 1.6, where 1.0 is best. CS & Mathematics coursework: 1.4, thesis: 1.0
Thesis: *Efficient Higher-Order Sobolev Training via Randomized Hessian Sketching*
B.Sc. Computer Science 09/2022
German grade 1.5 - top 10%

WORK EXPERIENCE

Postera Capital 05/2021 - 12/2021
Quantitative Research Analyst *Duesseldorf, Germany*

- Developed and evaluated ML-based crypto trading signals.
- Market-data preprocessing, statistical analysis and feature engineering.
- Designed and trained LSTM time-series models and performed systematic backtesting.

IRTG Modern Inverse Problems & Research Center Juelich 12/2023 - 10/2024
Student Research Assistant *Aachen, Germany*

- Improved the execution engine of L2L, a gradient-free optimization framework, enhancing parallel execution performance on the compute cluster
- High-performance computing at Juelich Supercomputing Center

SELECTED PROJECTS & RESEARCH

Master's Thesis:

- Developed efficient gradient- and curvature-aware neural network training methods using algorithmic differentiation and randomized numerical linear algebra.
- Neural network surrogate training for Monte Carlo approximated Bachelier and Heston option pricing models.
- Implemented custom loss functions and gradient computations for neural network weight updates.
- Built GPU-accelerated, vectorized training pipelines for high-dimensional ML models in Python/JAX.
- Achieved significant improvements in sample-efficiency and generalization through higher-order derivative supervision for option pricing models.

Automated Crypto Trading System

- Independently 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 B.Sc. thesis on augmented-reality rendering and mobile facial tracking.
- Technical blog articles on ML, optimization and time-series modeling: johannes-wilhelm.com

TECHNICAL SKILLS

Programming:	Python, C++, C, Java
ML/Numerics:	JAX, PyTorch, TensorFlow, scikit-learn, NumPy, Pandas, algorithmic differentiation
Infrastructure:	Git, Linux/Unix, Bash, Slurm, HPC, SQL