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# Lukas Voss

## Personal Statement

**Quantitative researcher** with a strong academic foundation in **Physics (MSc & BSc)** and **applied machine learning**, recently contributing to global Equity alpha and high-frequency execution research at **QRT**. Experienced in building scalable research infrastructure and signal pipelines with expertise in Python, cloud computing and **statistical modeling**. Background includes AI-driven quantum computing research and a proven track record across quantitative finance and deep tech environments.

## Experience

02/25 – 09/25 **Qube Research & Technologies**, *Singapore* – Quantitative Research Intern
- Researched and implemented two mid/low-frequency Equity alpha strategies across US, EMEA, and AEC regions, contributing to live portfolio with improved Sharpe (Python, AWS EC2)
- Analyzed market microstructure for Tokyo Stock Exchange to optimize HFT arbitrage execution, reducing slippage by ~2% and improving fill rates by ~4% for the market making desk (Python, Ray)
- Deployed BARRA factor dashboard used by 12+ researchers for model attribution and portfolio insights
- Received return offer for different team & office location due to internal restructuring; decided not to proceed

06/23 – 09/23 **Fraunhofer Institute Cyber Cognitive Intelligence**, *Stuttgart, Germany* – Guest Researcher
- Built machine learning models to predict network traffic in autonomous driving systems (Python, Docker)

06/22 – 08/22 **BlackRock** *Portfolio Analytics Group, Budapest, Hungary* – Summer Analyst
- Developed an automated testing framework validating multi-asset factor models; improved data-pipeline performance by 60% through optimized API calls (Python, Bash)
- Built Power BI dashboards translating quantitative insights into executive-level reports, using Python & SQL for data validation and integrated solution into a nightly update routine

03/22 – 06/22 **Roland Berger** *Restructuring and M&A Practice, Munich, Germany* – Graduate Consulting Intern
- Supported €100m+ chemicals sell-side & software CDD via market analysis, expert calls & data room mgmt.

10/21 – 12/21 **KPMG** *Financial Risk & Treasury, Munich, Germany* – Intern
- Shipped Power BI dashboard with web scraping & NLP in Python; demoed to nationwide team & two clients

## Education (GPA out of 4.0)

10/23 – 09/24 **National University of Singapore (NUS)** – MSc Physics – **GPA: 4.0**
- Deep reinforcement learning for quantum computing applications; Research stay at Yale-NUS college & CQT

09/22 – 06/23 **National Taiwan University (NTU)**, *Taipei, Republic of China* – MSc Physics – **GPA: 4.0**
- Focus: Statistical Modeling, Artificial Intelligence and Chinese Language (projects in Python & R)
- Two exchange semesters as part of a double-degree MSc program at Ulm University; graduated **top of class**

10/17 – 03/21 **Ulm University**, **BSc Physics and Management,** *Germany*
- Focus: Statistical Mechanics, Business Analytics; Thesis on Monte Carlo simulation techniques (Matlab)

## Research & Technical Projects

09/25 – today **https://fin-dash.xyz** – *Online Dashboard for personal investment portfolio across asset classes and currencies*
- Self-hosted project using VPS, Coolify and Docker; frontend in Next.js & backend in Python; Supabase DB

01/24 – 06/24 **Multivariate Bicycle Codes** *Research Project with A*STAR Singapore & TII Abu Dhabi* – Journal publication link
- Introduced new class of Quantum Error Correction codes improving encoding efficiency (Python, Ray)
- Conferences 2025: AQIS (Talk), APS Global Physics Summit (Talk), QIP (Poster), QCTiP (Poster)

10/23 – 09/24 **Reinforcement Learning for real-time context-aware gate calibration** *Research Project with CQT and Uni Oxford*
- Improved noise resilience of operations in quantum computers with Deep RL (PyTorch, JAX)
- Conferences: QTML 2025 (Talk), APS Global Physics Summit 2025 (Talk), QIP 2024 (Poster), QEI 2023 (Talk)

## Leadership & Achievements

09/24 – 01/25 **Chinese Language Scholar** *Shanghai Jiao Tong University, Shanghai, People's Republic of China*
- Full-time semester program for Chinese language and culture

09/22 – 06/23 **Baden-Württemberg Scholar & Regional Lead Taiwan** *Baden-Württemberg Foundation*
- Secured €25,000+ in academic funding, led Taiwan chapter & organized intercultural workshops for 23 scholars

06/16 **2nd in Nationwide Business Plan Competition** *German Entrepreneur Prize for Students*

## Skills & Interests

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| Languages | German (native), English (full working proficiency), French (est. B2), Mandarin Chinese (est. HSK 4, equiv. B1-2) |
| Coding | Python (proficient); R, Matlab, SQL, Next.js, Excel/VBA (intermediate); Bash, Git (basic); CI/CD |
| Technologies | AWS, GCP, Docker, Ray (intermediate); Spark, PySpark, Delta Lake (conceptual); HPC Clusters & LaTeX (experienced) |
| Competencies | Data Engineering, Big Data Analytics, Machine Learning Workflows, Technical Storytelling, Solution Architecture |
| Interests | Swimming, tennis, cooking, language learning, poker |