# Thoran Harry Ignatz Tschöpe

### EDUCATION

**MSc in Mathematical Finance and Actuarial Science** Technical University of Munich

BSc in Wirtschaftsmathematik Ludwig Maximilians University Munich Munich, Germany February 2024 Munich, Germany

Expected July 2026

- Thesis: "Quasi-Newton-Verfahren: Theorie und Implementierung" (Grade: 1.0)
- · Academic Achievements: Highest exam scores in Numerical Mathematics (167 students) and Programming 1&2 (100+ students); 2nd place in Probability Theory and 3rd place in Measure Theory (19 students each)

### **TECHNICAL EXPERIENCE**

- Developed a low-latency market data streaming library in C++ using Boost Asio and multithreading, with Python bindings for analysis workflows, optimized for processing multiple concurrent data sources
- Built and operate a Dell R730 server infrastructure running Proxmox, Grafana stack, Minio, Redis, and Docker for real-time market data streaming, storage, analysis, and algorithmic trading strategies
- Implemented comprehensive financial mathematics models including Black-Scholes PDE with finite difference methods, Monte Carlo simulations for American options pricing, and variance reduction techniques
- Created a modular neural network framework from scratch in C++ focusing on conceptual clarity, evaluated on MNIST dataset with fully connected architectures

#### **Hackathon Competitions**

Various Technical Competitions

- TUM.AI Makeathon OpenAI Challenge: 3rd place out of 600+ participants. Led development of an interactive policy simulation system where users act as governing entities proposing policies that generate complex ripple effects across multiple AI-simulated entities during environmental crisis scenarios
- Optiver TUM Challenge: 4th place out of 72 teams developing Python trading algorithms on simulated exchange (Optibook) with real-time market data and news processing
- CDTM Medical Challenge: Developed innovative solution for medical onboarding challenge by AVI, working in interdisciplinary team to streamline healthcare processes through technology

### **TECHNICAL SKILLS**

Mathematical Foundations: Financial Mathematics (discrete & continuous time), Stochastic Processes, Probability Theory, Measure Theory, Analysis, Numerical Mathematics, Optimization, Machine Learning, Mathematical Statistics

Programming Languages: C++, Python, R, MATLAB

Financial Technology: Low-latency systems, Market data processing, Algorithmic trading,

Munich, Germany

2025

Monte Carlo methods, PDE numerical solutions, Options pricing models

**Tools & Platforms:** CMake, Git, LaTeX, Docker, Visual Studio Code, CLion, Proxmox, Grafana, Redis, Minio

Systems: Linux-based systems, Windows

## LANGUAGES

German (Native), English (C2, TOEFL 114/120), French (B1), Spanish (A2)

### INTERESTS

Mathematics and technology in financial markets, quantitative modeling, artificial intelligence, low-level systems development, music, sports