Erik Eremenko

erik.eremenko@tum.de | Erik-Eremenko | ErikEremenko | eremenko.io

Education

- **Technische Universität München** *10/2023 – expected 04/2027*
  B.Sc. Computer Science, Mathematics, currently in 6th semester
- **Königin-Luise-Gymnasium Erfurt** *08/2015 – 06/2023*
  German university entrance qualification, final grade: 1.2

Projects

- **PolySimulator – AI-powered prediction market platform** *12/2025 – present*
  Co-Founder & Developer | Bavariance (in formation)
  – Built a full web platform for paper trading on prediction markets (Polymarket API)
  – **AI-agent-assisted development:** Built the codebase with GitHub Copilot Agent, using LLM workflows for feature development, debugging, MCP server integration, and code reviews
  – Production usage: 1,880+ registered users, 599 MAU, ~6,270 monthly visitors (as of 03/2026)
  – Technologies: Python (FastAPI/Uvicorn), TypeScript/Next.js, Redis, WebSockets, Supabase (PostgreSQL), Docker, Hetzner/Dokploy, Fly.io, Traefik, Prometheus/Grafana/Loki
- **Molecular Simulation Lab Course (TUM)** *10/2025 – 02/2026*
  – Implemented a molecular dynamics simulator in a team (Lennard-Jones potential, linked-cell algorithm)
  – Performance benchmarking and systematic testing (Valgrind, sanitizers, GoogleTest); collaborative PR workflow with supervisor reviews and regular sprint demos
  – Technologies: C++, CMake, OpenMP, GoogleTest, spdlog, VTK, YAML, Valgrind, Doxygen

Hackathons & Challenges

- **HackaTUM – IMC Trading Challenge (Bavariance)** *11/2025*
  – Built a trading bot with exchange API integration, automated order management logic, and an ensemble model for market price prediction
  – Technologies: Python, Exchange API, algorithmic trading strategies
- **Robo.Innovate Hackathon (TUM Venture Labs) []** *03/2025*
  – BMW Team A: On-premise server setup, training and fine-tuning deep learning models via imitation learning (LeRobot framework) []

Seminars

- **Seminar: Online Machine Learning (TUM)** *WS 2025/26*
  Seminar paper on online learning algorithms for time-series forecasting | co-authored with Sam Muller
  – Compared online SNARIMAX, Ternary Classifier, and batch ARIMA on S&P 500 data (River, Python)
  – Theoretical analysis: regret minimization, online Newton step, catastrophic forgetting

Technical Skills

- **AI & LLM Tools:** GitHub Copilot Agent, LLM-based development workflows, MCP (Model Context Protocol) Development, LeRobot Framework
- **Programming Languages:** Python, C, C++, Java, OCaml, TypeScript, JavaScript
- **Web & API:** REST API, WebSockets, Node.js, Next.js, full-stack web development
- **Cloud & Infrastructure:** AWS (Lambda, S3, EC2), Cloudflare, Google Cloud, Hetzner, Fly.io, Dokploy
- **Databases:** Supabase (PostgreSQL), Redis, SQL
- **DevOps & Build:** Git, Docker, CMake, Ninja, Bash, Doxygen, OpenMP, CI/CD (GitHub Actions)
- **Observability & Analytics:** Prometheus, Grafana, Loki, PostHog, MS Clarity
- **Mathematical Tools:** NumPy, Seaborn, Matplotlib, Pandas
- **Other Tools:** Linux (Ubuntu, Fedora), VTK, Paraview, Valgrind, perf, VTune (profiling), HPC (LRZ CoolMUC4)

Certificates

- **Hasso Plattner Institut:** Applied Edge AI: Deep Learning Outside of the Cloud *10/2022*
- **Hasso Plattner Institut:** Datascience Bootcamp *07/2023*

Languages

Languages: German (native), English (C1), Russian (native), French (DELF B1)