Milutin Popović

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Profile Summary

Interdisciplinary problemsolver leveraging a background in mathematics and physics. Specialized in developing high performance algorithmic solutions for complex problems, among others in finance and AI. Excels in cross-functional communication and turning research concepts into applicable technology. Proven ability to lead projects from research to deployment.

Work Experience

Generative AI Webapp for Interior Design Images
Technical Founder / Joint Venture | January 2023 - September 2023

- Full-stack development of a private webapp for generating interior design images using AI (Python, React, Javascript, HTML and CSS).
- Trained a custom computer vision model based on private interior design images on multiple A100 GPU servers, achieving photorealistic outputs (Linux, Cuda)
- Model optimization based on feedback from 20+ customers and property management agencies.
- Integrated payment system (Stripe), Admin dashboard, Email server, API endpoints and reporting pipelines
- Managed and deployed the server infrastructure on Linux, ensuring 99% uptime.

Key Learning Outcomes: *Feedback Prioritization, Customer Communication*

EVM based Frontrunning Algorithm
Entrepreneur - Sole Developer | November 2023 - Present

- Modeling and implementing a high performance algorithm to detect and take frontrunning opportunities on EVM based chains (Rust, Modeling)
- Constructing an ERC-20 token data pipeline for filtering, analyzing and opportunity scoring (Data Engineering, Python)
- Developing ultra-optimized, gas-efficient (30 % less gas) smart contracts for trade execution, leveraging low-level EVM functionality (Yul, Solidity, Foundry, Assembly)
- Implementing risk management and validation algorithms to minimize failed transactions by 65%.
- Automated deployment and testing pipelines for smart contracts, ensuring reliability and robustness (Foundry).
- Integrating real-time blockchain monitoring to track pending transactions and dynamically prioritize trades.
- Deploying and maintaining bare-metal Debian nodes in proximity to major data centers to minimize latency and ensure near real-time trade execution. (Linux, SSH)

Key Learning Outcomes: *Blockchain Functionality, EVM, Low-Level Code*

Projects

Reinforcement Learning Agent for Arbitrage discovery on Asset Networks

- Mathematical Modeling of Decentralized Finance Markets
- Formulating a MCTS based Reinforcement Learning Algorithm with Deep Graph Neural Networks to navigate a complex network of $4.1 \cdot 10^5$ assets and $4.3 \cdot 10^5$ connections (Python, Rust).

- Training the model on a supercomputer cluster provided (Slurm Scheduling, Linux).
- Writing highly optimized low level code for trade execution (Assembly, Yul)

System for Automated Bug Triage (MCP, LLMs)

- Created a AI-powered bug fixing system using a MCP servers (NodeJS, Python, FastAPI)
- Integrated LLM agents with MCP-exposed tools for generate fix proposals, identify impacted functions, and summarize issues.
- Automated bug fixing pipelines for classifying issues, evaluating them, and suggesting solutions. (Git, Redis)
- Improved triage accuracy and reduced manual workload by enabling the agent to map issues to relevant files and propose bug-fix strategies. (LLMs, embeddings, AST parsing)

Education

Master in Mathematics
University of Vienna | Vienna | 2021-2025

Area of Specialization: Applied Mathematics and Scientific Computing
Master Thesis: Cyclic Arbitrage on Constant Function Market Makers
Supervisor: Univ.-Prof.Dr. Radu Ioan Bot Privatdoz.
Key Learning Outcomes: *Interdisciplinary Collaboration, Mathematical rigor, Optimization*

Bachelor in Physics
University of Vienna | Vienna | 2018-2021

Area of Specialization: Computational and Theoretical Physics
Bachelor Thesis: Noncommutative Geometry and Electrodynamics
Supervisor: Lisa Glaser, PhD

Key Learning Outcomes: *Analytical Problem Solving, Abstract Thinking, Problem Modeling, Collaboration and Communication*

Skills & Competencies

IT Expertise: Linux, Bash, Vim, Rust, Python, Pytorch, MCPs, LLMs, NodeJs, Tensorflow, Numpy, OpenCV, CUDA, AWS, Julia, C, C++, Solidity, Yul, Foundry, HTML, CSS, Javascript, React, Latex, SQL, Docker, MariaDB, Redis, Ngnix, Dovecot, Postfix, Iptables, UFW, Slurm.

Competencies: Analytical and Quantitative Problem Solving, Mathematical Thinking, Interdisciplinary Communication, Perseverance, Intellectual resilience.

Skills: Machine Learning, Deep Learning, Reinforcement Learning, Supervised Learning, Computer Vision, Unsupervised Learning, Generative AIs, LLMs, Neural Networks, Graph Neural Networks, Prompt Engineering, Mathematical and Algorithmic Optimization, Scientific Computing, Blockchain, EVM, Real-World Complex Networks, VR-visualization, Data Engineering, Software Engineering.

Languages

Languages : German (Native), Serbian (Native), English (Professional), Portuguese (Fluent).