Vsevolod (Sev) Ladchenko

Statistician · Developer

vladtche@uwaterloo.ca | github.com/ConsciousMachines | linkedin.com/in/sevl

Summary

Self-taught, multiple hackathon winning developer with a Master's in Statistics. Worked at Canada's top hedge fund and a San Francisco startup. Love learning how things work under the hood, with personal projects ranging from data science to low-level systems software.

Projects

GPU Monte Carlo Option Pricing

Mar. 2024

- Accelerated Monte Carlo algorithms by a factor of 91,176 using JAX GPU, to price Asian options in Python.
- Decreased width of confidence interval by a factor of 510 using variance reduction techniques.

CPU Design for Code Performance

Jul. 2025

- Self-studied computer architecture for the purpose of writing efficient C code.
- Hand compiled programs to assembly to count clock cycles. Implemented several CPU designs on FPGA using SystemVerilog.

Bond and Equity Portfolio Risk Simulation

Jul. 2025

- Calculated probability of portfolio ruin using Monte Carlo, modeled interest rates and inflation with SDEs.
- Achieved 25x speedup by offloading SDE computations to C. Simulated realistic market conditions using bootstrapped S&P 500 data.

Experience

University of Waterloo

Waterloo, ON, Canada

Researcher in Machine Learning — *Jan. 2023 – Aug. 2023*

- Improved model prediction accuracy by 42% while extending latest research on PCA methods in domain adaptation.
- Proved existence of label alignment property in datasets with multivariate target variables.

Polar Asset Management Partners

Toronto, ON, Canada

Software Developer — *Jan. 2018 - Jul. 2018*

- Optimized running time of proprietary inference code by 77% using vectorization with CUDA and C++.
- Identified market outperforming equities using statistical analysis on price data and visualizations made with SQL and Matplotlib.
- Delivered competitive edge by adjusting decades of data for inflation weeks ahead of Bloomberg Terminal.
- Improved leadership's asset allocation decisions by building quantitative models to identify risk factors.
- Streamlined colleagues' workflows by building a bridge to access low-level numerical code from Python.

Lamden.io

San Francisco, CA, USA

Software Developer — *Jul. 2017 - Dec. 2017*

- Enabled device communication with ZMQ, translated business logic to Ethereum Smart Contracts, secured transactions using Atomic Swaps.

RiskLab

Toronto, ON, Canada

Researcher in Machine Learning — *Aug. 2015 - May 2017*

- Developed predictive models for VIX volatility and ESG earnings impact using LSTM in TensorFlow.
- Built web scrapers for news reports and applied NLP to predict company earnings from ESG reports.

Awards

2nd Place Winner - Scotiabank Data Science Discovery Days

Feb. 2024

- Identified client pain points by categorizing app reviews into 20 topics using open source text embedding and LLM.
- Prioritized which complaints to address first by ranking client sentiment. Successfully identified and filtered out all spam using t-SNE.

1st Place Winner - Toronto Legal Tech Hackathon

Jun. 2017

- Identified legal industry pain point regarding the profitability of personal injury cases.
- Predicted case success probability with TensorFlow to help legal professionals decide whether to take a case.

Education

University of Waterloo

Waterloo, ON, Canada

Master of Mathematics in Statistics — *Sep. 2020 - Apr. 2024*

- *Master's Paper:* Implemented PDE solvers and algorithms from research literature on neuroscience simulation using Python + JAX.
- *Statistical Consulting:* Generated safety boundaries that cover simulated missile impacts with 99.999% probability in R.

University of Toronto

Toronto, ON, Canada

Honours BSc: Mathematical Applications in Economics and Finance Specialist + Statistics Major — *Sep. 2011 - Apr. 2016*