VSEVOLOD (SEV) LADCHENKO

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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 projects from data science to low-level systems software.

EDUCATION

Master of Mathematics in Statistics - University of Waterloo, Canada
September 2020 - April 2024

- *Master's Paper*: Implemented PDE solvers and algorithms from research literature on neuroscience simulations using Python + JAX.
- *Deep Learning*: Constructed Bayesian Neural Networks for Out-Of-Distribution (anomaly) detection in image data. Successfully produced confidence score that identified when an image is not from the original training distribution.
- *Statistical Consulting*: Generated safety boundaries that cover simulated missile impacts with 99.999% probability in R.

Honours BSc: Mathematical Applications in Economics and Finance Specialist + Statistics Major - University of Toronto, Canada
September 2011 - April 2016

SKILLS

Python, C, C++, CUDA, SQL, R, PyTorch, TensorFlow, JAX, NumPy, Pandas, Matplotlib, Seaborn, Scikit-learn, Excel, FPGA, SystemVerilog

PROJECTS

GPU Monte Carlo Option Pricing *(March 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.

Bond and Equity Portfolio Risk Simulation *(July 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.

CPU Design for Code Performance *(July 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.

AWARDS

2nd Place Winner - Scotiabank Data Science Discovery Days
February 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
June 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.

EXPERIENCE

University of Waterloo, Waterloo, ON, Canada
Researcher in Machine Learning - *January 2023 – August 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 - *January 2018 - July 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 – *July 2017 - December 2017*

- Designed and deployed distributed ledger system using ZMQ, translated business logic to Ethereum Smart Contracts.

RiskLab, Toronto, ON, Canada
Researcher in Machine Learning - *August 2015 - May 2017*

- Built predictive models + web scrapers for VIX volatility + earnings using LSTM and NLP applied to ESG news reports in TensorFlow.