David Gurevich

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Education

University of Waterloo — Waterloo, ON
Bachelor of Mathematics in Computer Science and Computational Mathematics — *Expected Graduation: April 2025*
Relevant Courses: *Machine Learning, Computational Linear Algebra, Stochastic Processes*

Experience

Radar — New York City, NY
Software Engineering Intern — *September 2024 - December 2024*

- Improved speed and accuracy of company proprietary geocoder using **Rust**. Fixed bugs and added features to support international addresses, leading to several new customers.
- Developed an **Apache Spark** pipeline to ingest and process every street in the world to later be used in the geocoder.
- Designed a new indoor uplink TDoA-based real-time location system using ultra-wideband (UWB) technology. Performed **STM32** board bring-up. Implemented robust localization, optimization, and estimation algorithms in **Python**.

University of Waterloo — Waterloo, ON
Undergraduate Researcher — *May 2024 - August 2024*

- Conducted research on non-parametric change detection methods, with the intention of identifying shifts in unknown probability distributions on an incoming stream of data.
- Applied advanced geometric methods to learn representations of high-dimensional data that are more conducive to change detection. Developed solution that was more robust than current state-of-the-art methods.
- Investigated the use of hardware Spiking Neural Networks for solving partial differential equations, particularly as hardware accelerators for such tasks.

Enlighted – Siemens AG — Waterloo, ON
IoT Research Intern — *January 2024 - April 2024*

- Researched and developed an **LSTM**-based approach to perform localization of BLE assets using **TensorFlow**.
- Developed and integrated a robust Kalman filter using **Python**, **Redis**, and **MongoDB**, accessible via **FastAPI**.
- Performed mathematical analysis on optimal estimators (CRLB) and filters (Kalman) to establish benchmarks.

MathWorks, Inc — Glasgow, Scotland
Software Engineer in Test Intern — *May 2023 - August 2023*

- Enhanced the **C++** based high-speed data acquisition interface, ensuring accurate performance benchmarking and optimal system evaluation.
- Consolidated several RF processing chains to reduce the number of **FPGA** bitstreams required for building and testing MATLAB Wireless Testbench by 50%, resulting in a 4+ hour reduction in daily build time.

Microchip Technologies, Inc — Toronto, ON
Software Engineering Intern — *September 2022 - December 2022*

- Implemented improvements and developed data structures in **C++** which eliminated non-determinism in LLVM-based synthesis from C/C++ to Verilog, allowing for improved integration testing.

Applied Mind, Inc — Ottawa, ON
Software Development Intern — *January 2022 - April 2022*

- Performed novel research to design and implement sensor fusion algorithms (using **Kalman filter**, TDOA) in **Python** to eliminate error in RF emitter location estimates from 2 meters to 0.5 meters.
- Designed and implemented high-speed data streaming application for **embedded Linux** system in **Rust** within soft real-time performance constraints.

Applied Mind, Inc — Ottawa, ON
Embedded Software Development Intern — *May 2021 - August 2021*

- Developed multithreaded radio signal acquisition software in **Rust** to receive and process LTE signals at over 60 MS/s.
- Made use of **DMA** and **CPU caching** in order to transfer received data from FPGA to processor at over 1 GB/s.

Technical Skills

- **Languages**: Python, C++, C, Rust, MATLAB, Scala, Scheme, SQL