David Gurevich

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Technical Skills

- **Languages**: Python, C++, C, Rust, MATLAB, SQL, Shell scripting
- **Libraries**: NumPy, SciPy, Pandas, Matplotlib, Flask, OpenCV, FFTW, CTypes
- **Tools/Environments**: Git, Vim, JetBrains IDEs, gdb, Docker, CMake, Microsoft Excel

Experience

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
- Designed and deployed custom Continuous Integration workflow for embedded software using GitHub Actions
- Implemented Linux userspace drivers in Rust and C for radios and high-performance clocks

Research in Flows, Inc — Brampton, ON
Software Engineer — *February 2018 - September 2020*

- Responsible for the ground-up architecture and development of a low-cost digital signal processing system for high frequency signal analysis in industrial applications
- Developed a high-throughput, multi-threaded Python application for acquisition and processing of high frequency analog signals within strict operational requirements
- Collaborated on and prototyped custom signal processing algorithms in MATLAB with final implementation in C++

York University — Toronto, ON
Research Assistant — *January 2019 - August 2019*

- Conducted original epidemiological research to design an ODE model to simulate the dynamics of a virus outbreak in secondary schools, with implementation in MATLAB and C++
- Implemented certain improvements in C++ software (multi-threading, data structure optimization) to improve execution time by a factor of over 17,000 – saving days of compute time

Projects

Radar-based Drone Identification: Novel machine learning based approach to the identification of drones from radar signals
Python (NumPy, Matplotlib, SciPy, TensorFlow)

- Developed a novel approach to the identification of drone types from noisy radar signals
- Approach won second place in competition organized by CANSOFCOM, DRDC, and Hack The North
- Collaborated with engineers and researchers at CANSOFCOM and Defence Research and Development Canada
- Utilized TensorFlow to fit a Convolution Neural Network classification model based on state of the art research

3D Sound Synthesis: Localize audio to a particular location around the listener
C++ (STL, FFTW, CMake), MATLAB

- Designed a custom algorithm for 3D sound synthesis, given a position on the unit sphere using various DSP methods
- Prototyped in MATLAB, with memory efficient implementation in well documented C++ code
- Performed an extensive literature survey to determine the state-of-the-art in 3D sound synthesis

Education

University of Waterloo — Waterloo, ON
Candidate for Bachelor of Mathematics, Computer Science — *Expected Graduation: April 2025*

GPA: 3.96/4.00
Level: 2A