

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, Buildroot

EXPERIENCE

Applied Mind, Inc

Ottawa, ON

Software Development Intern

January 2022 - April 2022

- Designed and implemented high-speed data streaming application for embedded system in Rust within soft real-time performance constraints
- Implemented sensor fusion algorithms (Kalman filter) in Python to eliminate error in location estimates by 75%
- Performed literature review to determine and implement state of the art of signal emitter localization methods

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++
- Made use of multithreading and job scheduling in C++ to outperform comparable simulation methods by several days

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
- 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 final implementation in C++

EDUCATION

University of Waterloo

Waterloo, ON

Candidate for Bachelor of Mathematics, Computer Science

Expected Graduation: April 2025