David Gurevich

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Technical Skills

- **Languages**: Python, C++, C, MATLAB, SQL, Shell scripting
- **Libraries**: NumPy, SciPy, Pandas, Matplotlib, Flask, OpenCV, CTypes
- **Tools/Environments**: Git, Vim, JetBrains IDEs, gdb, Make, CMake, Visual Studio, Linux, Windows

Experience

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

- **Mathematical Research**: Conducted original epidemiological research to design an ODE model to simulate the dynamics of a measles outbreak in secondary schools, with implementation in MATLAB
- **Computational Model**: Designed and implemented an Agent-Based Model alternative to the ODE model in C++ with improved accuracy and realism
- **Software Optimization**: Implemented certain improvements in C++17 software (multi-threading, data structure optimization) to improve execution time by a factor of over 17,000, saving days of compute time
- **Conference Planning**: Supported the planning of the 2019 Annual Society for Mathematical Biology meeting. Developed Python and Shell scripts to automate repetitive tasks

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

- **Research, Architecture, and Development**: Responsible for the ground-up design and development of digital signal processing system for high frequency signals, including purchasing OEM hardware, and production software development
- **Exceptional Performance**: Developed a high-throughput, multi-threaded Python application for acquisition and processing of high frequency analog signals within strict operational requirements
- **Digital Signal Processing**: Collaborated on and prototyped custom digital signal processing algorithms in MATLAB with final implementation in C++
- **Cost-saving Improvements**: Worked within strict budget requirements to create an effective low-cost solution, demonstrated in an ultrasonic flow-measurement application

Projects

- **Trading Bot**: Python implementation of custom stock trading algorithm
  Python (NumPy, Pandas, Matplotlib)
  - Custom algorithm performs at or above market levels in almost all cases – as much as 220% above market
  - Developed mathematical method for prediction of scale of stock growth
  - Designed custom strategy testing framework for easier evaluation
  - Investigated and evaluated various data analysis techniques
- **Object detection web app**: Multimedia object detection software powered by deep learning
  Python (NumPy, SciPy, Flask, OpenCV)
  - Lead a team of developers to create a complex compute-intensive service
  - Implemented Mask-RCNN object detection algorithm in an easy-to-use web application
  - Effectively scheduled compute-intensive jobs to handle multiple users at once

Education

University of Waterloo Waterloo, ON
Candidate for Bachelor of Mathematics, Computer Science *2020 - Present*

Relevant courses: Linear Algebra, Calculus, Functional Programming, Algorithm Design and Data Abstraction