# David Gurevich

dgurevich@uwaterloo.ca
(416) 414 0515
gurevich.ca

## 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. (MATLAB, Python)
- **Computational Model**: Designed and implemented an Agent-Based Model alternative to the ODE model with improved accuracy and realism. (C++17, Python)
- **Software Optimization**: Implemented certain improvements in software (multi-threading, data structure optimization) to improve execution time by a factor of over 17,000, saving days of compute time. (C++17)
- **Conference Planning**: Helped plan 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 phase demodulation 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
- **Scientific Collaboration**: Collaborated with team of scientists to develop and implement novel digital phase demodulation algorithm
- **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 that outperforms market by as much as 220%
  *Python (NumPy, Pandas, Matplotlib)*
  - Investigated and evaluated various technical analysis techniques
  - Designed custom strategy testing framework for easier evaluation
  - Developed mathematical method for prediction of scale of stock growth
  - Tested performance of strategy against market growth – performs at or above market levels in almost all cases
- **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