David Gurevich

david@gurevich.ca | 416 414 0515 | Website: david.gurevich.ca | Github: davidgur

Skills

- **Languages**: Python, C/C++, MATLAB, Bash, HTML/CSS, LaTeX **Development**: Git, Linux, Unit Testing, Async
- **Libraries**: NumPy, Pandas, SciPy, Flask, C++ Standard Library (STL), Windows API, CUDA, SciKit-Learn, Tessearct OCR, Bokeh, Matplotlib

Experience

York University Toronto, ON

Research Assistant *January 2019 - Present*

- **Measles Research**: Conducted epidemiological research to model the dynamics of measles in secondary schools
  - Implemented a deterministic ordinary differential equation model that models the population compartmentalization of students in secondary schools during a measles outbreak (MATLAB, Python)
  - Designed and developed an Agent-Based Model (ABM) alternative to the ODE model with improved accuracy and realism. Improved execution time by a factor of over 17,000 (C++17 [STL], Python)
  - Documented findings in an epidemiological report co-authored by supervisor
- **Typesetting**: Typeset course notes for supervisor using LaTeX
- **SMB Conference**: Helped plan 2019 Annual Society for Mathematical Biology meeting
  - Aided in scheduling hundreds of speakers and symposiums in a quick and efficient manner
  - Developed Python and Shell scripts to automate repetitive tasks

AMAG, Inc Missisauga, ON

Software Engineer *February 2018 - November 2018*

- **Research and Development**: Researched cost-effective solutions for PC based data acquisition (DAQ) and arbitrary signal generation
- **Real-time Computing**: Developed a C++ application for (soft) real-time data acquisition and processing of ultrasonic signals
- **Web Interface**: Used Python and Flask to design an easy-to-use web interface that allows users to specify and send an ultrasonic signal, and then visualize and process the input from the DAQ device
- **Collaboration**: Worked closely with team and supervisor to outline technical limitations and to overcome them

Projects

- **Ultrasonic fluid flow meter**: A soft real-time utility that allows uses to send and receive ultrasonic signals using USB hardware
  Python (NumPy, Scipy, Bokeh, Flask), C++11 (STL), CUDA, MATLAB, Windows API
  - Developed application to scan and process data at a rate of 20 mega samples per second (MS/s)
  - Utilized asynchronous scheduling to conduct multiple back-to-back scans with minimal idle time
  - First of its kind user interface for commercial and industrial applications
- **Agent Based Model**: An agent based model for the spread of measles in secondary schools
  C++ (STL), Python (NumPy, Pandas), MATLAB
  - Designed extremely extendable model of agents in a secondary school environment
  - Engineered to process one day (over 15,000 stochastically generated actions) in less than 60 milliseconds, saving days of compute time
- **Y.U.R.I**: Multimedia object detection software powered by deep learning
  Python (NumPy, SciPy, Flask, OpenCV)
  - Lead a team of developers to create a complex compute-intensive application
  - Implemented Mask-RCNN object detection algorithm in an easy-to-use web application
  - Capable of GPU hardware acceleration for even faster object detection
  - Achived 100% as final project in ICS4U Computer Science course

Education

Westmount Collegiate Institute Vaughan, ON

Ontario Secondary School Diploma *Expected June 2020*

GPA: 4.0

Involvment: President of Computer Science club, Vice-President of Model UN

Additional Experience & Achievements

- Placed top 25% of students in the **Canadian Computing Competition**
- Achieved silver award in **The Queen's Commonwealth Essay Competition**
- Earned 100% in TEJ3U Computer Engineering course for being the first person to develop a functioning version of Tetris for the Arduino
- Volunteer at local elementary school by controlling audio equipment (mixing boards, microphoens) for assemblies of 1000+ people
- Award-winning classical guitar player of over 10 years. Won multiple first place trophies at the **North York Music Festival**
- Elected as president of Computer Science club at Westmount Collegiate Institute for strong aptitude in mathematics and computer science