NATHAN LEUNG *3A Mechatronics Engineering, University of Waterloo*

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Programming

- C
- C++
- Python
- Java
- MATLAB

Tools and Protocols

- Git
- Bluetooth Low Energy
- Google Protocol Buffers
- SMS
- Cellular modem AT commands
- I2C
- UNIX command line

Development Areas

- Embedded Systems
- Scripting (Python)
- Real Time Operating Systems
- Android App Dev
- Front-end web dev
- Object Oriented Programming
- Data Structures and Algorithms

Online Courses

- Embedded Systems (EdX)
- Android Handheld Systems (Coursera)
- Complete Web Dev Course (Udemy)
- Automate the Boring Stuff with Python (Book)

Education

Mechatronics Engineering | **University of Waterloo** 2014 - 2019

- 92% Cumulative Average; Dean's Honours list every term thus far.

Experience

Embedded Software Developer | **Clear Blue Technologies** Winter 2016

- Contributed to development of the embedded architecture for smart street lights, including features to detect and prevent excess current draw from the battery and ports, and logic for technicians to test peripheral motion sensors upon installation.
- Developed the engine to handle communication with the cloud over cellular networks using the on-board modem; as well as an API to communicate via SMS.

Research and Development Engineer | **Lumentra Inc.** Winter 2016

- Designed and developed a smart light meter device that measures light intensity and is controlled by an Android application over Bluetooth Low Energy.
- Prototyped the device on two microcontrollers, one of which was running a real-time operating system.
- Implemented features on the Android app, such as graphing intensity in real time, and storing and retreiving data with SQLite.

Engineering Design Co-op | **Centerline (Windsor) Limited** Spring 2015

- Co-designed a system for processing aluminum extrusion pieces; reduced time of the existing process by 45%.
- Designed and edited CAD models of standard Centerline products using Autodesk Inventor 2014 and AutoCAD

Projects | nathan-leung.github.io/projects/list

Audio Frequency Spectrum Visualizer | *MATLAB* Spring 2016

- Built a MATLAB application that displays the magnitudes of up to 24 bands of frequencies of an audio sample in real-time.
- Uses simulated band pass filters that simultaneously measure the magnitude of each band of frequency.

Zombie Bomber Embedded Video Game | *C* Spring 2016

- Developed an original video game on an embedded microcontroller platform with a real-time operating system; which used an LCD screen, a joystick, interrupts, and LEDs.
- Randomly generated zombies chase the user around the screen, while picking up bombs which allow the user to trigger an interrupt-driven explosion to kill zombies.

Bluetooth Automated Door Lock | *Java, C++* Spring 2015

- Built a password-protected door locking mechanism, using an Arduino which is controlled via Bluetooth from an Android application.