Nathaniel Johnston

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Education

University of Waterloo **Sep. 2017 - Apr. 2022**
Bachelor of Applied Science, Electrical Engineering *CGPA 87.34%*

Work Experience

Solutions Architecture Developer **May 2022 - Aug. 2022**
BlackBerry Ltd.

- Worked as sole developer for a Syslog emulator to generate all types of BlackBerry Syslogs for test and demo use cases
- Designed a **Python** parser to convert Syslogs into JSON using a combination of RegEx and string method
- Developed systems using **Docker** so the code could be easily run on any computer
- Wrote multiple blog posts about BlackBerry technologies on *BlackBerry's developer blog*

Solutions Architecture Developer **Sep. 2021 - Dec. 2021**
BlackBerry Ltd.

- Aided in design of **React.js** application, allowing users to automatically find security vulnerabilities in mobile apps
- Added and modified server side **REST** endpoints using **Node.js**
- Used **React Native** and **Firebase** to build an **Android** app to receive security threat notifications on remote devices
- Wrote a technical blog post on BlackBerry security APIs for *BlackBerry's developer blog*

Hardware Designer - Research Assistant **Jan. 2021 - Apr. 2021**
Institute for Quantum Computing - University of Waterloo

- Used **KiCAD** to complete schematic capture and layout of an RF power amplifier PCB for use in a quantum simulator
- Designed and simulated 3rd order maximally flat (Butterworth) radio frequency filters using **LTspice**
- Modelled 3D electronic and mechanical components using **Autodesk Inventor**
- Sourced components and wrote in depth guides and documentation

Motor Control Subteam Lead **Jul. 2019 - Apr. 2020**
Waterloop Student Design Team

- Managed team of 6 students, taught important concepts, and supervised progress through weekly meetings
- Designed high power motor control board with 3-phase transistor inverter for linear induction motor
- Performed schematic capture and circuit board layout using **Altium Designer** and **KiCad**

Enterprise Solutions Developer - IoT **Sep. 2019 - Dec. 2019**
BlackBerry Ltd.

- Sole designer and developer for proof of concept for smart security system
  - Microcontroller used ultrasonic sensor and camera to detect motion and send video to **Raspberry Pi** via **MQTT**
  - Used **Node.js** and **Python** on a **Raspberry Pi** to detect faces and send secure alerts to users via BlackBerry APIs
  - System automatically disarmed when it detected a nearby familiar device or correct PIN was entered into keypad
- Wrote multiple technical articles on the *BlackBerry developer blog*
- Served as Subject Matter Expert on new BlackBerry REST API for both company partners and team members

Full Stack Developer **Jan. 2019 - Apr. 2019**
Martello Technologies

- Used **Java** and **PostgreSQL** to update how company's licenses are distributed to customers
- Improved loading time of customer profile page by ∼90% from over 60 seconds to less than 5 seconds
- Made and modified REST endpoints to optimize performance and improve code readability

Projects

Automatic Pill Dispenser and Health Tracker

- Worked as part of a team of 4 to build an automatic pill dispenser, health tracking wristband, and **Android app**
- Used **KiCAD** to perform schematic capture and PCB layout of the wristband and dispenser
- Designed wristband to use Li-Po battery with micro-USB charging
- Wrote embedded firmware for ESP32 microcontrollers and incorporated IoT protocols for reliable communication

Technical Skills

Hardware: KiCAD, Altium Designer, LTspice, NI Multisim, soldering, oscilloscope
Embedded: SPI, I2C, UART, CAN, ESP32, Arduino, Raspberry Pi, TI Launchpad
Languages: Python, C, C++, JavaScript, Java, Matlab, SQL
Other: Linux, Git, Node.js, React.js, REST, Android Studio, Firebase, MQTT, Docker, Autodesk Inventor