Nicholas Short

Electrical and Computer Engineering Student

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Education

University of Toronto   *Toronto, Canada*
Bachelor of Applied Science & Engineering: Electrical and Computer Engineering   2019 -2023
>   Relevant courses: Control Systems, Digital Signal Processing, Digital and Analog Electronics, Computer Hardware, Machine Learning

Awards: Edward S. Rogers Sr. Admissions Scholarship, Stuart Morris Computer Science Scholarship, 2019-2020/2021-2022 Dean's Honours List

Experience

Laszlo Energy Services – Electronics and Software Engineer   *Toronto, Canada*
May 2022 - Present
- Designed and implemented an electronic product to interact with residential heat pumps to actively minimize home heating expenses according to peak electricity prices and utility-initiated demand response events
- Engineered and had manufactured a custom ESP32-based PCB, with plans to mass manufacture within the coming year
- Developed custom firmware to communicate with a cloud-server web API, and enable OTA updates

Bibliocommons – Platform Engineer Intern   *Toronto, Canada*
May 2022 - August 2023
- Developed user-facing settings panels in Ruby on Rails, embedded Ruby, and JavaScript based on UX specifications
- Deployed and configured software applications running on AWS EC2 instances
- Implemented new reliable code to existing backend services in Java

Metrolinx TOTM Project Team – Software Developer   *Toronto, Canada*
TOTM: Transit Operations Technology Modernization Program
July 2021- August 2021
- Developed software for a message queue probing service (RabbitMQ), to verify queue health using the .NET Core framework
- Containerized the queue probing service with Docker
- Implemented a Redis database to ensure High Availability

Projects

Two Wheel Balancing Robot | Project GitHub: github.com/nicholasshort/TwoWheelRobot
- Designed and built a two wheel self balancing robot using an Arduino Nano microcontroller and the MPU6050 inertial measurement unit (IMU)
- Successfully achieved stability by employing a PID control loop, and implemented a Kalman Filter to filter out the accelerometer noise and to account for gyroscope drift

Music Genre Classifier | Project GitHub: https://github.com/terryluan12/Genrify
- Designed a CNN-based music genre classifier to classify a 3 second audio clip into one of ten musical genres
- Successfully achieved 86% test accuracy

Skills

Technical Skills:
- <u>CAD</u>: Altium, KiCAD, CATIA, SolidWorks
- <u>Programming Languages</u>: C/C++, C#, Python, Java, Javascript, MATLAB
- <u>Frameworks:</u> Pytorch, TensorFlow, Flask, ESP-IDF
- <u>Hardware:</u> ARM Assembly, System Verilog, Quartus Prime, Model Sim, FPGA
- <u>Others:</u> Git, Linux / UNIX Systems, Microsoft Office