Sean Byungyoon **Kim**

3B MECHATRONICS ENGINEERING

416-827-4490 | sean.b.kim@edu.uwaterloo.ca | seanbyungyoon.kim | SeanByungyoonKim | seanbyungyoonkim

Qualifications

Programming Languages: C++, C#, C, Java, PLCs, MATLAB, LabVIEW, HTML, CSS
Software Tools: Github, I2C, TCP/IP, .NET, PuTTY, Modbus, NI Vision Assistant, Visual Studio
Mechanical/Electrical: AutoCAD, SolidWorks, Arduino, FEA, 3D printing, laser cutting, drill press, band saw, wiring, soldering

Experience

IGNIS Innovation Inc.
Sept. 2017 - Dec. 2017

Hardware Engineer — *Waterloo, Ontario*

- Designed a camera rig capable of moving in 3 axes utilizing lead screws, servo motors and aluminum profile
- Reduced initial setup time of panels for analysis from 30 minutes to 3 minutes
- Automated the movement controls of the camera rig using PLC and C# programs via the .NET and Modbus protocols

Flex Ltd.
May 2016 - Aug. 2016

Test Systems Engineering — *Markham, Ontario*

- Developed an embedded LabVIEW program to display custom colour patterns on automotive displays and interpret signals sent/received from a touchscreen via I2C
- Automated the visual analysis of 13 000 images using NI Vision Assistant and LabVIEW for quality control
- Implmented a LabVIEW program to control a LabSat 3 GPS Simulator remotely via the TCP/IP protocol
- Created a software driver using C to control the voltage and current of electronic loads of end of line testers

Synaptive Medical Inc.
Sept. 2015 - Dec. 2015

Systems Tester — *Toronto, Ontario*

- Programmed a test jig using an Arduino and C++ to automate a life-cycle test, reducing testing time by 72 hours
- Designed a user interface with Java to control test jig, log test data and create custom log entries
- Optimized existing test protocols to reduce the duration of test protocols by 50%

Ericsson Canada Inc.
Jan. 2015 - Apr. 2015

Test Automation Software Designer Co-op — *Ottawa, Ontario*

- Observed, reported and fixed issues on nightly test runs of automation sofware in Erlang regarding LTE features

Projects

.WAV Player
Jul. 2017 - Aug. 2017

- Developed a music player on an Altera Max10 FPGA that can play .WAV files using C
- Implemented features for the player such as skip, fast forward, rewind, play, pause and stop

Embedded Frogger Game
Nov. 2016 - Dec. 2016

- Developed a game similar to Frogger using C to run on a Keil MCB 1700 evaluation board
- Implemented multiple tasks to run simultaneously while the game is running
- Utilized multiple peripherals (potentiometer, joystick) on the Keil board as ISRs to control the game

Line Following Car
Sept. 2016 - Nov. 2016

- Soldered, wired and designed the circuitry of a model car that was able to traverse through a course by following a line
- Programmed the model car by using C++ to control the model car's movements

Ultrasonic Sensor Caliper
Mar. 2016 - Apr. 2016

- Recreated a caliper using an ultrasonic sensor and an Arduino to measure the length of objects
- Designed, laser cut and assembled fixture that emulated a caliper and encased the circuit
- Developed a C++ program to interpret and convert data from the ultrasonic sensor to metric and imperial measurements

Education

University of Waterloo
Sept. 2014 - Present

Bachelor of Applied Sciences, Mechatronics Engineering — *Waterloo, Ontario*