Elizabeth Morrow

3A Mechatronics Engineering

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Technical Skills

- Strong coding skills in applications and embedded systems development. Strongest in C, C++, C#. Familiar with ARM and x86 Assembly, Java, Python, HTML/CSS, and MATLAB.
- Accomplished in robotics and automation (Arduino, Raspberry Pi, MSP430).
- Experienced in electrical design and testing for embedded systems (Altium, AutoCAD).
- Bilingual (French), with excellent presentation and communication skills.

Recent Projects

2048 on ARMv7 Real Time System

- Implemented 2048 game logic in C using RTX Real Time Operating System kernel. Leveraged multithreading and hardware interrupts for speed and responsiveness.
- Modified native graphics library in order to imitate desktop game experience with only 32KB RAM.

Work Experience

Software Engineering Intern – *Microsoft Corporation* Jan. 2016 – Apr. 2016

- Developed full IDE experience C/C++ tool set for Linux and Raspberry Pi developers on Windows. Used SSH and SFTP for remote system access, GCC and GDB tools as compiler/debugger back end. (C#)
- Designed and implemented authentication and remote connection manager interfaces using MVVM design pattern. (XAML/C#)
- Project release reached #5 on Hacker News.

Explorer Intern – *Microsoft Corporation* May 2015 – Aug. 2015

- Implemented Visual Studio out of process debugger for Lua scripting language. Leveraged C# asynchronous named pipes, function detouring, C++ multithreading, and COM interfacing. (C++ and C#)
- Wrote hand rolled lexer for Lua language that was chosen as the base for the language model.

Control Systems Design Intern – *MedAvail Technologies Inc.* Aug 2014 – Dec. 2014

- Developed phone handset testing system, including insulated enclosure and software. Used Fast Fourier Transforms to analyze signal and hardware quality. Saved company $15,000 (price of competing solution). (C#).
- Implemented microcontroller diagnostic package converter. Improved speed using hashing and multithreading to translate diagnostic messages in real time. (C#)
- Wiring and electrical system layout. (AutoCAD).

Electrical Co-op – *Midnight Sun Solar Car Team* Jan. 2014 – Apr. 2014

- Firmware development (C). Developed CAN network diagnostic tools. (Python, C#)
- Soldered and tested battery and light control PCBs. (Altium)

Leadership Roles

Waterloo Student Design Teams and Engineering Society Sept. 2013 - Present

- Since first year I have been a huge advocate for the value of student teams. This passion has driven me to serve various tenures as Electrical Team Lead for the solar car design team, Student Teams Director for the Engineering Society and Student Teams Events Director for Waterloo Orientation Week.

Education

Candidate for Bachelor of Applied Science, Honors Mechatronics Engineering Sept. 2013 - Present
University of Waterloo
Relevant Courses: MTE 325 Microprocessor Systems and Interfacing, MTE 320 Power Electronics

Other Interests: Hockey, rock climbing, hiking, performing in musicals.