

Objective:

Seeking a full time firmware engineering role with room for professional growth and development.

Summary of Strengths:

- Highly motivated, self directed, and able to adapt to and learn new technologies, practices, and platforms.
- Fluent with object-oriented programming techniques in multiple languages.
- Background in embedded systems design, including embedded Linux and microprocessor programming.
- Experience with web and mobile application development, including apps for sale on the iOS app store.
- Primary inventor of a WiFi semantic location detection algorithm which was awarded a patent in the US and EU.
- High level of proficiency troubleshooting software and performing quality assurance testing.

Education:

2011-2015

Whitworth University

- Bachelor of Science in Computer Science
- Minor in Communication Studies

Work Experience:

2015 -
Present

Firmware Engineer AMX By Harman

- Pioneered the use of embedded Linux for the next generation of AMX 4k video processing equipment. Achievements include acquiring an intimate knowledge of the new architecture, writing documentation, teaching embedded Linux to peers and managers, and creating hardware prototypes. Work was focused on heterogeneous asymmetric multiprocessing on an i.MX7 Dual M4/A7 core chip.
- Responsible for the on-time delivery of firmware for an HDBaseT input switcher card. The firmware included link negotiation, dynamic discovery of remote video encoders, control plane communication, and network communication with a master unit. Firmware was successfully delivered on time with no major bugs, and the boards are currently deployed in hundreds of locations around the world.
- Created an integration test environment to help developers test their code throughout development. The framework substantially expanded the coverage of tests during development and reduced the bugs discovered by the validation team.

2014

Software Engineering Internship Intel Corporation, PC Client Group

- Worked on prototype electronic circuitry, embedded systems software, and environmental sensor research for a cutting edge internet of things (IoT) project. Member of a core team of developers and engineers responsible for developing a set of prototype devices in a fast paced environment.
- Researched and engineered a WiFi fingerprinting algorithm for the Intel WiDi app. Owned all aspects of research, design, implementation, and scientific testing for WiFi fingerprinting and alternative location detection methods. The algorithm was issued a patent in the US and EU.

2013

Hardware Validation Software Engineering Internship F5 Networks

- Performed extensive work on a quality assurance software suite. Created a data mining tool and configuration builder, optimized application speed, and performed user experience updates to improve ease of use.
- Engineered an embedded Linux device to analyze product performance and correlate system failures to temperature. The system is used to control industrial temperature chambers and analyze temperature points across devices under test.

Research Experience:

2012 - 2013

Improving Multi-Agent Exploration Efficiency By Perimeter Analysis

Research focuses on the use of exterior data to aid multi-agent searches of an unknown area. Preliminary simulations indicate the proposed method can improve search efficiency despite the overhead of data acquisition.

Presented findings at the 2013 Spokane Intercollegiate Research Conference.

Programming Skills:

Languages / IDE	Adept with object oriented programming techniques and numerous languages including C, C++, Python, Objective-C, C#, PHP, and assembly. Familiar with state machine development.
Mobile Development	Have written several native iOS applications. The apps included backend server communication, server-side scripting, push notifications, and in-app purchases.
Multithreaded Development	Experience programming multi-threaded applications. Worked on production firmware which required mutexing access to hardware resources.

Embedded Systems:

Linux	Knowledgeable about embedded Linux. Experience building custom images using buildroot, writing device trees to match custom hardware, and working with the U-Boot bootloader. Extensive work with Freescale i.MX6, i.MX7, and TI Sitara devices. Familiar with device drivers and loadable kernel modules.
Programming	Experience developing in C and C++ for microcontrollers and have extensively developed on Freescale ColdFire and Atmel AVR. Good understanding of hardware protocols including I2C, SPI, and RS-232. Understanding of sysfs and bidirectional kernel and user space interaction.
Debugging	Ability to debug embedded software with limited debugging tools. Familiar with using logic analyzers, oscilloscopes, and other lab diagnostic equipment. Able to identify and debug both firmware and hardware issues. Comfortable using GDB.
Hardware Design	Experience designing and routing PCB's for standalone and embedded system hardware. Familiar with multi-layer design, high speed signaling, power supply design, DFM concepts, and more. Proficient with soldering and rework for THT and SMT devices down to 0.5mm pitch and 0402 packages.

General Skills:

Troubleshooting	Adept at finding and resolving software and hardware bugs in a timely manner. Able to diagnose and resolve complex problems over the phone and in person. Ability to tailor instruction to user's level of familiarity and technical fluency.
Rapid Prototyping	Able to rapidly create prototypes, including circuit design, testing, PCB layout, firmware, and enclosure design. Familiarity with 3D printing, modeling for 3D design, laser cutting, and enclosure milling.

References:

Please contact for references