Denver Hoggatt

Computer Engineer · Embedded Systems Engineer · Firmware Engineer · Embedded Software Engineer

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Experience

Hypercraft
Provo, UT

Embedded Software Team Lead — *Sep. 2024 - Jun. 2025*

- Lead the firmware development for a battery thermal management system using event-driven architecture written in modern C++.
- Implemented low-level boot and driver code, which allowed the company to utilize an ASIL rated automotive MCU.
- Improved the unit test environment by implementing a system that enforced 100% code coverage for application layer unit tests.
- Improved the system test environment by integrating a pytest based hardware-in-the-loop test system.

Code Corporation
Murray, UT

Senior Firmware Engineer — *May 2019 - Sep. 2024*

- Firmware development is no longer the bottleneck in a product's engineering process.
- Reduced code size by over 600% through the combination of 8 different repositories.
- Eliminated several days in the release process by automatically generating product documentation directly from the code.
- Became the primary contact for firmware development and debugging in an 11-person team.
- Reduced bug count by 85% through unit test and custom test framework integration.
- Led the firmware development on 3 different products where development was finished weeks prior to deadline.
- Implemented image processing algorithms for machine vision applications for 4 different OEM customers.
- Doubled the size and efficacy of the firmware team by creating a scalable git development process.

Code Corporation
Murray, UT

Firmware Engineer — *May 2017 - May 2019*

- Halved product time-to-release by transitioning to an agile development environment.
- Integrated critical wireless BLE communication systems on the highest revenue products.
- Implemented a low-level flash file system and JavaScript interpreter, which is a critical driver for sales on flagship products.
- Satisfied all product requirements for 6 different products by developing robust drivers for low-level peripherals on a custom RTOS.
- Fully secured our products through the design and implementation of a system which utilizes cryptographic algorithms.

Code Corporation
Murray, UT

Firmware Engineer Intern — *Jan. 2017 - May 2017*

- Implemented a complete system of embedded software for a charging system.
- Implemented communication systems for Apple MFi accessories.

University of Utah
Salt Lake City, UT

Teaching Assistant — *Jan. 2016 - May. 2017*

- Demonstrated proper coding and debugging techniques in 50-person laboratory exercises for low-level systems software.
- Led a 20-person digital systems laboratory which implemented and programmed MIPS processors implemented on FPGAs.

Northrop Grumman
Hill AFB, UT

Software Engineer — *Aug. 2014 - Dec. 2016*

- Solved high priority requirements violations in the associated targeting system software and HDL.
- Assisted in the implementation, documentation, and testing of operational systems for ICBM software.
- Implemented a complete system of simulated in-flight targeting software.

Northrop Grumman
Hill AFB, UT

Software Engineer Intern — *May 2014 - Aug. 2014*

- Assisted in the implementation, documentation, and testing of ground systems for ICBM software.

Education

University of Utah
Salt Lake City, UT

Master of Science in Computer Engineering — *Aug. 2015 - May 2017*

University of Utah
Salt Lake City, UT

Bachelor of Science in Computer Engineering — *Aug. 2010 - Dec. 2014*

Skills

Programming Languages	C, C++, Python, JavaScript, C#, LaTeX, ARM Assembly, Verilog, SystemVerilog, VHDL, Rust.
Operating Systems	Bare-metal, RTOS, FreeRTOS, Embedded Linux, Linux, Zephyr.
Toolsets	Visual Studio Code, Git, JIRA, Altium, Vim, Visual Studio, Bitbucket, GDB, Node.js, Cpputest, Gtest, Gmock, PyTest, Protocol Buffers, FlatBufs.
Peripherals	Bluetooth Low Energy, USB HID, USB CDC, SPI, I2C, UART, CAN, LIN, Profinet, Ethernet IP, Wifi.
Data Formats	TOML, JSON.
Cryptography	SHA-1, CBC, CRC, FIPS.
CPU/MCUs	ARM, NXP, ST, Faraday, Microchip, Renesas, Samsung, Texas Instruments
Processes	Agile, Unit Testing, Test Driven Development, Software Debugging, Software Documentation, SoC Development, Hardware Bring-up.

Patents

2022	**11,361,181,** Controlling Access to Barcode-Reading Functionality	*United States*
2023	**18,314,644,** A Barcode-Reading System Utilizing a Machine Learning Model That is Trained to Predict Decodability of an Image by a Barcode-Decoding Model	*United States*

Projects

Electrical Impedance Tomography Analysis Unit

Sandia National Labs

Embedded Programmer — *Aug. 2013 - May. 2014*

- Worked in a team of 5 to develop a unit which took EIT measurements across a coated surface and processed the data to reconstruct a visualization of damages.
- The visualization was constructed using Python running on embedded linux, which talked to various microcontrollers on custom built PCBs, and programmed in C.

MIDI Controlled Digital Synthesizer

University of Utah

Developer — *Aug. 2012 - Dec. 2012*

- Worked in a team of 4 to develop a MIDI controlled digital synthesizer using a Verilog design implemented on an FPGA.
- The synthesizer utilized a custom CR16 processor and various peripherals, and programmed in assembly using an assembler written in Python.

Hobbies

2016	**Finisher,** Ironman Triathlon	*Coeur d'Alene, ID*
2017	**Finisher,** Ironman Triathlon	*Boulder, CO*
2023	**Competitor,** Masters Nationals Short-Course Swimming	*Irvine, CA*