Christopher Woodall

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Technical Skills

Software: C, C++, Python, C#, Bash, Linux, Git, SVN, MySQL, GUI toolkits (Wx, QT, Unity), unit testing.
Hardware: PCB layout and schematic capture in Altium, FPGA design in VHDL, soldering, ARM, MSP430, AVR, PIC32, simulation (LTSpice), debugging, and serial communication protocols (CAN, UART, TCP/IP, USB, I2C, SPI).

Experience

Sr. Embedded Software Engineer - Propulsion October 2019 - Present
BETA Technologies Burlington, VT

- Developing controls algorithms, fault detection and software for 300kW Permanent Magnet Motors.
- Testing new electric propulsion unit designs, working closely with the motor development team to validate design and controls.
- Writing libraries for our peripherals and STM32F4/F7 processors to be used across all projects.

Lead Embedded Software Engineer February 2019 - October 2019
Apricity Somerville, MA and Bend, OR

- Writing software in C/C++ for IoT, medical and bluetooth audio devices.
- Managing software projects for clients.
- Implementing version control best-practices, procedures and reviews to improve code quality.

Sr. Embedded Software Engineer December 2015 - February 2019
Barrett Technology, LLC Newton, MA

- Writing firmware in C and C++ for ARM Cortex-M4 microprocessors for motor control and medical applications.
- Writing processes and scripts for software configuration, manufacturing and development for a FDA regulated device.
- Architecting and implementing controls and communications for a 3-DOF robot with 6 seperate firmware nodes, and high-level controls over TCP/IP from a C# library.
- Maintaining and developing GUI tools with Wx and Python for testing, and configuring hardware modules.
- Writing software and firmware to communicate reliably using CAN and CANOpen.

Electrical Engineer II June 2014 - November 2015
Vecna Technologies, Inc. Cambridge, MA

- Lead firmware and electronics designer for a lithium-polymer battery pack for mobile robotics.
- Responsible for electronics design, integration, and FCC/CE compliance for a vitals enabled patient self-service kiosk.
- Developing automation scripts, troubleshooting, and maintaining Altium Designer to improve process efficiency.

Technician January 2011 - June 2014
Boston University, Electronic Design Facility Boston, MA

- Designed and assembled scientific instrumentation and test equipment for particle physics research experiments.
- Focused on FPGA design using VHDL with Xilinx ISE, and PCB layout using KiCAD and Altium.

Education

Bachelor of Science in Electrical Engineering, Magna Cum Laude May, 2014
Boston University, College of Engineering Boston, MA

- **GPA:** 3.76 out of 4.0
- **Related Coursework:** Power Electronics, RFIC Design, Digital Signal Processing, and Embedded Systems.

Selected Technical Projects

Patent, High Performance Current Sensing Architecture For Brushless Motors, 2020, Patent Number: 20200153372
dDOSI Digital Spectrum Analysis Unit, Senior Design Project September 2013 - June 2014

- Modulates 6 near-IR lasers from 50 MHz to 500 MHz, and digitizes the resulting waveforms after passing through human skin to classify tumors.