Sebastian Fiorini

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Skills

Languages C++, C, Python, Bash, Powershell, C#, SQL, Rust, Elixir, MATLAB
Tools Linux, gdb, vim, Make, git, mercurial, MySQL, VirtualBox, Docker, SaltStack, Buildroot, Travis CI
Knowledge Embedded Systems, Concurrency, Real Time Systems, Algorithms, Data Structures, Electronic Lab Equipment

Work Experience

Software Development Engineer *Redmond, Washington*
Microsoft Corporation *May 2018 - August 2018*
- Developed framework to control hardware components of Surface products reducing testing time for functional device validation
- Brought up and provided support for sensor driver libraries to be used in next generation SOC shipped in future products releases

Embedded Software Engineer *Sunnyvale, California*
Nuvation Engineering *September 2017 - December 2017*
- Served as a consultant and developer to manage customized Linux OS images for unreleased third party client products
- Redesigned software update procedure for embedded Linux machines to significantly reduce update and configuration time
- Developed new features and API for a custom bare metal scheduler to simplify scheduling of periodic events
- Improved on-board STM32 programmer by analyzing and modifying hex files to increase flashing speed by factor of 10

Embedded Software Engineer *North York, Ontario*
Clear Blue Technologies *December 2016 - April 2017*
- Designed, tested, and deployed networking, battery management, and lighting capabilities on embedded streetlight controller in C through over the air updates
- Developed method to avoid flickering lights with ATMEL DSP libraries when unreliable third party hardware was used
- Debugged hardware interrupts and wrote waveform initialization routines for inverter loads to reduce their inrush current
- Worked with *XBee*, *ZigBee* chips, and 3G cell modems to establish Internet connections and obtain GPS coordinate information
- Optimized controller battery life by designing a new charging phase to extend power generation from solar panels and wind turbines on cloudy and wind-free days

Software Engineer *North York, Ontario*
Clear Blue Technologies *April 2016 - August 2016*
- Designed API calls between controller and cloud using Google Protocol Buffers to download system settings and send telemetry data
- Developed and implemented state machine for front panel LEDs on controller to determine communication status with cloud
- Created generic modem interfacing program (similar to Unix *chat*) for bare metal software to easily work with different modems
- Conducted database administration activities and document updates in MongoDB to ensure API call job queues worked correctly
- Forked miniterm.py to monitor controller behavior and graph IO data over time of controller ports

Automated Test Engineer *Mississauga, Ontario*
Cooper Industries, Fifthlight LTD *September 2015 - December 2015*
- Designed tests for embedded controller to check adherence to lighting protocol using LabView and NI TestStand

Education

University Of Waterloo *Waterloo, Canada*
Bachelor of Applied Science, Mechatronics Engineering *September 2014 - April 2019*
- **Relevant Courses**: Microprocessors, Real Time Systems, Concurrency, Sensor Fusion, Databases, Networking

Projects

Computer Vision Based Retail Analytics
- Wrote computer vision processing system to detect and track customers going in and out of a door for engineering final project
- Wrote networking library and concurrent queuing containers to increase system performance

Submarine Design
- Wrote PID controller to maintain submarine depth and orientation when moving around an obstacle course

Satellite Modem Management
- Wrote and tested modem interfacing software in C for Cubesat running an embedded Linux OS
- Wrote *AT* commands to open and manage point-to-point protocol connection with ground station