Sebastian Fiorini

(805) 215 5320 | sebf465@gmail.com | sebfio.me | sebfio | sebastianxf

Skills

Languages C, Python, Java, C++, GoLang, Elixir, Bash, Labview, MATLAB
Tools Linux, gdb, vim, Make, git, mercurial, VirtualBox, Docker, SaltStack, Buildroot, Travis CI, Jenkins
Technical Knowledge Algorithms, Data Structures, Real Time Systems , Electronic Lab Test Equipment, I^2C/SPI/UART

Work Experience

Embedded Software Engineer
Sunnyvale, California

Nuvation Engineering
September 2017 - Present

- Served as a consultant and developer to manage customized Linux OS images for unreleased third party client products
- Redesigned new software update procedure for embedded Linux machines to significantly reduce update and configuration time
- Developed new scheduling features and API for a custom bare metal scheduler to simplify scheduling of future time-based events
- Modified and improved STM32 flashing software by analyzing hex files to increase program 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 calls between controller and cloud using *Google Protocol Buffers* to download system settings and send telemetry data
- Developed and implemented state machine for LEDs on controller for installers 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
- Worked with *USB*, and *RS-232* DLL's to control PSU's and programmable load banks for custom built testing applications

Projects

2048
- Recreated the popular tiling game 2048 for Keil RTX RTOS with multiple *threads* and *semaphores* to control game logic
- Wrote colour conversion algorithms to create colour wheel effects when spinning on-board potentiometer

Linear Voltage Displacement Transformer
- Designed and tested hardware and software in order to accurately measure displacements up to ±0.22mm
- Converted *Arduino* 5V DC signal into sinewave using *555 timer* and a series of low pass filters
- Amplified output signal to 5V and used peak detector in order to improve accuracy when reading from ADC

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

Education

University Of Waterloo
Waterloo, Canada

Bachelor of Applied Science, Mechatronics Engineering
September 2014 - Expected April 2019

- **Relevant Courses**: Computer Interfacing, Real Time Systems, Power Electronics, Sensor and Instrumentation