Jack Case

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Summary

BSc. in Computer Engineering with software development experience across bare metal, embedded real-time operating systems, Linux machines, and containerized applications in Kubernetes. Seeking a role on a multidisciplinary team where I can exercise my embedded programming skills to develop high-quality software systems.

Skills

C • C++ • Python • Java • Bash Scripting • Linux • FreeRTOS • GNU Make • Docker Kubernetes • Git • Subversion • Doxygen • Unit Testing • Test-Driven Development Jenkins • Github Actions • Vagrant

Experience

Vanu, Inc. — December 2022 - Present

- Contributing to C and C++ software for a low-cost, low-power cellular base station designed for remote areas without existing cellular infrastructure
- Working on Bash and Python scripts which automate provisioning and updating of the different hardware components of the system
- Developing a web-based user interface for factory testing of new hardware
- Maintaining build and release tooling for containerized software components orchestrated by k3s
- Configuring virtual machines with Vagrant to streamline development and testing by reducing dependence on specifically configured physical devices

Maxlinear, Inc. — June 2020 - November 2022

- Contributed to C firmware shared across customized digital predistortion hardware products
- Created and maintained GNU makefiles to build software for release to customers
- Engaged in all parts of the project lifecycle from requirements gathering, implementation, testing, delivery, to customer support
- Collaborated with FPGA designers and DV engineers to implement and debug software running on a Xilinx Zynq UltraScale+ RFSoC ZCU111 board
- Implemented DMA drivers to share a common API between dissimilar DMA hardware
- Developed a Python script to package source code and documentation for release to customers
- Debugged FreeRTOS register corruption causing critical issues with lab testing
- Built Docker images to encapsulate customer-provided build tools and dependencies to ease develpment and testing with customer hardware in the lab

Raytheon IDS — May 2019 - June 2020

- Contributed to PATRIOT training system development in Java, Python, and CShell scripts
- Led effort to migrate version control from ClearCase to Git to streamline

development process

- Implemented automated build and test pipelines with Jenkins for new and existing software
- Implemented Java software to handle network communication between existing software in many different languages

Enel X
January 2018 - July 2018

- Contributed to web and mobile energy management application implemented with Node.js and Angular
- Behavior-driven development with Cucumber.js
- Git flow with continuous integration managed by Jenkins

Lockheed Martin RMS
January 2017 - July 2017

- Developed C software for F-35 program as part of an agile team
- Worked with hardware and FPGA engineers to define software requirements
- Designed and implemented POST software with full unit test coverage
- Set up automated build and test pipeline with Jenkins

Education

Bachelor of Science in Computer Engineering
May 2019

- Rochester Institute of Technology
- Cum Laude

Projects

Raspberry Pi-based Desktop Programmer's Calculator

- Interfaced an I2C character LCD and a mechanical keypad matrix to a Raspberry Pi Zero
- Modified a kernel driver for the character LCD to compile successfully on Raspberry Pi OS
- Modified the matrix keypad Linux kernel driver to handle simultaneous inputs on the same row of the matrix
- Implemented application software in Python to handle the keypad input and display output in a manner inspired by ncurses – designed to support implementing additional applications in the future
- Designed an enclosure for laser cutting in OpenSCAD
- Soldered together the electronics on perfboard following a schematic designed in KiCad
- Project GitHub Repository - https://github.com/GandalfDG/ProMacroPad

Educational Autonomous Vehicle Platform

- Designed and assembled PCB to interface between an NXP K64 (ARM Cortex M4) microcontroller board and a small vehicle
- Wrote software in C++ with FreeRTOS to allow the vehicle to navigate a track with input from a simple camera for presentation at the Imagine RIT event
- Source code: tinyurl.com/JCSourceCode
- PCB Design: tinyurl.com/JCpcbDesign