David Pfeiffer – Embedded Systems

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Languages
Verilog
VHDL
Assembly (ARM thumb, x86_64)
C
C++
Rust
Java
OCaml
Ruby
Python
Unix Shell / Bash
TeX

Tools
Git
Make / CMake
Xilinx Vivado/TCL
AutoHotkey
IDAPro / Ghidra
GNU Core Utilities

Frameworks
Qt5
SQLite
NumPy
Matplotlib

Operating Systems
GNU / Linux
MacOS
Windows

Relevant Courses
Computer Vision - CMSC426
Program Analysis - CMSC631
Binary Reverse Engineering and Hardware Security - ENEE459b
Microprocessors - ENEE440

Extra-Curricular Activities
Viola
Guitar
Brazilian Jiu-Jitsu

Professional Experience

Northrop Grumman – Linthicum, MD
Embedded Softare Engineer August 2018 – Present

- Wrote and utilized drivers in C to test a custom ASIC including UART, Ethernet, DMA, etc.
- Built embedded test application to launch tests simultaniously using FreeRTOS and C.
- Designed various FPGA components to manage high throughput IQ data.
- Ported existing GUI based FPGA build system to Makefile/TCL scripts which enabled the team automate their multi-hour builds/tests.
- Automated metric collection and reporting with Python, saving 1-2 days of manual effort.
- Wrote a linux kernel module for a custom PCIe device using linux's DMA and PCIe infrastructure.

Arena NP – Lynchburg, VA
Intern Embedded Systems May 2017 – August 2017
Co-op Embedded Systems January 2016 – August 2016

- Wrote embedded software for micro-controllers and single-board computers
- Designed digital circuits using Xilinx Spartan 3 FPGAs
- Built circuits with OrCAD
- Created UI for embedded devices with C++, Qt, and MFC
- Automated common tasks using Makefiles, Python, Bash

University of Maryland – College Park, MD
Organization of Programming Languages, TA August 2017 – Dec 2017

- Lead a discussion section to supplement lectures with exercises and additional explanation of theory.
- Held office hours to assist students with questions about the course's theory and projects.

Projects

Embedded VoIP Device – Lynchburg, VA Summer 2016

- Created a digital replacement for an existing communication device at a 5x lower cost than off the shelf solutions
- Implemented a peer-to-peer distributed system to ensure that users could seamlessly communicate without setting up dedicated servers
- Identifed and implemented re-use for VoIP backend using Mumble
- Designed a custom PCB with components including flash memory, USB audio codec, LCD, push-buttons, and powered Ethernet
- Wrote software drivers for QSPI flash, serial LCD, GPIO controls

Education

B.Sc. Computer Engineering Spring 2018

- University of Maryland, College Park
- 3.5 GPA