MATTHEW TAN

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LANGUAGES AND OTHER EXPERIENCE

Languages: C, C++, Python, Assembly, MATLAB
Software and Tools: Linux, Docker, Git, Jira, KiCad
Hardware: Lab Test Equipment (Oscilloscopes, Multimeters), SMD Soldering, PCB Design

WORK EXPERIENCE

Hardware and Systems Developer, Waterloo, Canada
onsemi 05/2022 – 08/2022

- Developed toolchains to build embedded projects in different IDEs with multiple options and optimizations.
- Programmed C firmware tests and used behavior-driven development modules in Python to automate them.
- Tested C firmware issues on a hardware development board and debugged them by stepping in C/Assembly and using an oscilloscope to find the root cause and solve the issues.

Discrete Graphics Validation Intern (Linux and Server Platforms), Toronto, Canada
Intel 09/2021 – 01/2022

- Validated discrete graphics test cases on Linux platforms and reported bugs through Jira.
- Maintained Docker images for graphic and computational workloads on Linux servers.
- Used power measurement hardware to ensure that power limits of graphics units are met.
- Programmed a Python script that communicates with an Arduino through serial communication and the host platform through Paramiko SSH to automate test cases.

Discrete Graphics Validation and Lab Operations Intern, Toronto, Canada
Intel 01/2021 – 04/2021

- Tested and validated discrete graphics platforms and host compatibility and setup protocol analyzers.
- Developed Python scripts to scrape and track lab power infrastructure with Selenium and WebDriver.
- Soldered and reworked surface-mount resistors and capacitors, as small as 0201, and integrated circuits.

PROJECTS

Keyboard PCB Project, C++, KiCad

- A SMD-soldered 101-key keyboard with a custom designed PCB using an ATMega32U4 microcontroller and programmed with QMK Firmware

Python Parallel Port Controller (DB25), Python

- A series of LEDs and input buttons controlled by a DB25 connector programmed with Python to simulate a game

EDUCATION

Computer Engineering, Waterloo, Canada
University of Waterloo 09/2019 – Present

Courses: Algorithms and Data Structures, Systems Programming and Concurrency, Embedded Microprocessor Systems