Silas Waxter

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Education

Oregon State University **September 2020 - June 2024**

B.S. in Electrical and Computer Engineering, Minor in Computer Science *GPA 3.53*

Skills

Software	C, C++, Python, Lua, Bash, Git, Gitlab CI, Markdown, Make, Bazel, Docker, Linux, Vim, SPICE, EDA (KiCAD), CAD (Inventor, OnShape, SolidWorks), MatLab, GCC,
Tools	Logic Analyzer, Oscilloscope, In-Circuit Debugger/Programmer (JTAG), Electronic Load
Relevant Classes	Digital Signal Processing, Control Systems, Power Electronics, Computer Architecture

Work Experience

PercFab **June 2023 - September 2023**

Phone Installation Technician *Tuscon, Arizona*

- Gathered call-flow requirements from customers and realized them in more than 5 VoIP systems

METER Group Inc **June 2022 - September 2022**

Firmware Engineering Intern *Pullman, Washington*

- Created a hardware-in-the-loop (HIL) continuous integration (CI) system for the AquaLab3 product
- Produced an integration test suite that exercises serial connectivity, command line interface, firmware update, and humidity/temperature sensors
- Refactored the AquaLab3 command spreadsheet, reporting 8 firmware bugs and applying git-styled documentation for future parsability
- Developed a Python v2.7+ serial device library that handles handshaking processes with METER Group Devices

Unimeasure Inc **July 2021 - September 2021**

Electro-Mechanical Intern *Corvallis, Oregon*

Project Experience

Drawing SCARA Robotic Arm

- Implemented a PID motor controller, timer-based encoder driver, and a PWM motor driver
- Wrote a publish-subscribe interrupt abstraction module allowing driver code to follow separation of concerns
- Drafted 19 dimensional drawings enabling arm construction from off-the-shelf parts

Low-Noise Low-Visibility Drone

- Made two buck converters, 30W and 50W, that steps-down a 6S LiPo battery (18V to 25V) to 3.3V and 5V
- Programmed a python script that captures/loads an audio signal and analyzes its relative power spectral density
- Formulated a control system for noise canceling that was instantiated on an FPGA via SystemVerilog

Range of Motion Device

- Wrote a typescript electron app with a 3D interface that displays sensors' orientations and calculates a continuous, multi-revolution axis-angle representation of the sensors' relative rotation.
- Developed a hardware abstraction layer for STM32L4 (Arm Cortex M4) C which outperforms vendor’s

AVR Assembly Rock-Paper-Scissors Game

- Architected a finite state machine with synchronized state transitions via UART
- Self-taught preprocessor macros to follow "no magic numbers" and "DRY" principles at no performance cost

Humidity Controlled Mushroom Fruiting Chamber

- Applied bang-bang control via sensors and an ultrasonic humidifier resulting in +/-1% steady-state error.
- Designed and 3D printed a humidifier reservoir with a float switch and solenoid valve to maintain the water level