Dylan-Matthew Garza

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Objective

Computer Engineering student graduating in December 2024 experienced in Linux systems both as a server and desktop, programming in C/C++ and Rust for Linux systems, Web Assembly for online web applications, Yocto Project for constructing reproduceable custom embedded Linux images seeking full-time position where I can apply my technical skills and continuously expand my knowledge base by embracing and mastering new and rising technologies.

Work Experience

ZF Group, Research and Development Intern August 2024 - Present

· Design and Implement a device with capabilities to test different vehicle components to determine if specifications are met
· Test device will reduce the amount of time testers spend setting up tests and allow engineers to more easily see how test fail
· Using Yocto Project to build a custom embedded linux image for an ARM Cortex A7 architecture
· Designed a fully Web Assembly application for testers to interact with (using the yew framework in Rust)
· Designed a Rust backend application to handle HTTP request and communicate to an onboard microcontroller (ARM Cortex M4) through IPCC/OpenAMP

Resideo, Embedded Linux Engineer Intern May 2022 - August 2022

· Successfully integrated debuginfod, a file server, into CI/CD pipeline in order to make the debugging workflow and analyzing core files of embedded Linux systems simpler and more efficient.
· Worked primarily on an CLI and wrote shell scripts to automate tasks.
· Also learned about the Yocto Project as an embedded Linux build system.
· Wrote technical documentation and gave a presentation on how tools worked.
· Worked in an Agile environment

eMatrix Energy Systems, Assembly Technician May 2021- August 2021

- Constructed and tested various components of battery packs and battery cells
- Worked with engineers on prototyping (constructing, testing)
· Followed safetey protocols to ensure a safe working environment

Projects

Dynamic Conveyor Belt Positioning System April 2023

Designed and implemented a system utilizing an STM32 microcontroller to move an object on a conveyor belt from start to end position using peripherals such as LED indicator, IR emitter and receiver module, H-Bridge motor driver module, and motor encoder module, with specific operations and frequency/duty cycle adjustments based on input signals.

Custom 10-bit CPU January 2023 - April 2023

Designed a custom 10-bit ISA and simulated a CPU using Verilog HDL. CPU was implemented in both single-cycle and in pipelined fashion with two-level memory hierarchy with cache and RAM. Branch predictor was also implemented and programs were ran such as multiply, string copy, and bubble sort.

Education

Western Michigan University Expected: December 2024

B.S. in Computer Engineering and Minor in Mathematics

Certifications

LFD 460:Embedded Linux Developement with Yocto Project August 2022

Gained expertise in developing custom embedded Linux systems through the Yocto Project, encompassing advanced tool usage and IDE integration for efficient embedded product development.

Technical Skills

Programming: C/C++,Rust,Web Assembly,HTML + CSS,Python,Java,MATLAB Shell(Bash/POSIX)
Hardware: VHDL,Verilog,RTL and RTL design, Microcontrollers, KiCAD
Tools: Linux(As server), Git, Yocto Project(Bitbake) ,TCP/IP, ELF Binary analysis, QEMU, Simulink, MATLAB