Joseph Rendleman - *Embedded Software Engineer*

Contact	
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Github	Github

Summary

Enthusiastic Computer Engineer with **hands-on experience** in **embedded systems and firmware development**. Skilled in C/C++ programming, embedded software, and debugging. Proven track record of improving system performance and leading technical projects. Seeking to leverage skills in embedded systems to contribute to innovative projects with a focus on **sustainability**.

Education

Bachelor of Computer Engineering (ABET Accredited)

University of Minnesota: College Of Science and Engineering

Graduated: 05/2023

Professional Experience

Silicon Validation Engineer - HPE (08/2023-Present)

- Maintained and enhanced **Python**-based **job-batching framework** for **Emulation** sytems with over **40 users**, reducing reported issues by **90%** through modernization.
- Contributed to a **distributed testing framework** for network ASICs, identifying over **30 bugs** using constrained random stimulus and UVM concepts.
- **Boosted performance** of testing framework on small **ARM** based switch controllers by **80%** using tools such as **py-spy** and **Cython**.
- **Led** and **coordinated** a team of 2 interns, overseeing the completion of **20+ JIRA**.
- Guided 2 engineers with **20+ years of experience** in developing a **pytest** suite for the job batching framework.
- Participated in **code review**s emphasizing **readability** and **efficiency**; **maintained 2-3 Github Repositories**.

Electrical Team Technical Lead - UMN Solar Vehicle Project (05/2021-05/2023)

- Enhanced **embedded C++ software** for **ECUs** controlling vehicle's **SAE J1772** charging interface and lights and vision peripherals.
- Designed and assembled **PMSM motors**, achieving a 56% increase in torque and 96% efficiency within tight constraints, contributing to a **2nd place finish** at the World Solar Challenge.
- Developed a Python-based Strategy Solver tool with a **REACT.js** web-GUI for vehicle efficiency and telemetry decoding.
- Debugged vehicle systems, including **CAN** bus and wiring, using **oscilloscopes**, **logic analyzers**, and **CAN sniffers** in a **HIL** environment.

- Particapated in the 2022 American Solar Challenge as a driver and strategy team member and won **1st place** in the MOV class.
- Led code reviews, educated **20-30 new team members**, and participated in the executive team for critical decision-making.

Silicon Validation Intern - HPE (06/2022-08/2022)

- Developed **Scapy** based Ethernet packet creation library for test framework.
- Expanded my knowledge of validation engineering and **Ethernet protocols**.

Undergraduate Researcher - UMN ECE (02/2021-05/2022)

- Participated in 2 research projects under professors Kia Bazargan and Marc Riedel.
- Modeled **neural networks** for 5G network channel estimation and COVID immunology using **CUDA** toolkit for Python.

Additional Experience

Campus Tour Guide - UMN Visit Office (05/2021-08/2021)

- Engageed 10-20 prospective students and parents in each tour and provided them with an introduction to the university.

IT Help Desk Specialist - UMN IT (05/2020-08/2020)

- **Supported** Alumni, Faculty, Staff, and Students with university-related **software and hardware issues**, Interacting with 30-40 customers daily.

Media and Technology Intern - Edina Public Schools IT (05/2018-08/2018)

- Prepared over **100 district computers** for the school year through imaging, repairs, and maintenance.

Technical Skills

- Programming Languages: Python, C/C++, Bash, Make, MATLAB, Java, JavaScript
- Embedded Systems: Arduino, Raspberry Pi
- Microcontrollers: STM32G4/F4/G0/L4, Microchip PIC24
- RTOS: FreeRTOS