Joseph Rendleman - *Embedded Software Engineer*

Contact	
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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 creativity and technical 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

Embedded Software Test Engineer - Medtronic (11/2024-Present)

- Managed, maintained, and troubleshooted **20 HIL** stations used for pump testing in both regression and manual testing environments.
- Developed Python toolset to automate the repetative steps in HIL station maintenance from scratch, reducing time spent to flash the station hardware from 2 hours a week to 30 minutes a week.
- Adapted test designs into Javascript-based test scripts and executed test scripts in bot SIL and HIL environments.
- **Root-caused** regression issues, reporting software and library bugs through **JIRA**.
- Effectively balanced many projects and completed assignments punctually on a sprint based timeline.

Silicon Validation Engineer - HPE (08/2023-11/2024)

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