

Diego Lopez



(617) 892-1902



diegolhendrix@gmail.com



dl4583



DiegoLHendrix

Intro

Embedded Systems Engineer with a passion for designing and integrating embedded software and hardware, seeking an internship for the Summer and Fall. **Available May 2025 to December 2025.**

Education

Rochester Institute of Technology - B.S. Computer Engineering Technology Expected May 2026

Dean's List Fall 2023

Skills

Languages: C++, C, VHDL, Python, ARM Assembly

Environments and Software: Git, GitHub, MATLAB, Quartus Prime, Modelsim, LTSpice

Embedded Systems: FPGA, STM32 Microcontrollers, FreeRTOS, UART, I²C, SPI, ThreadX RTOS

Relevant Coursework: Embedded Systems Design, Real-Time Operating Systems, Digital Electronics, Digital Signal Processing

Relevant Projects

RIT Electric Vehicle Team · Firmware Team · Rochester, NY

09/2023 - Present

- Worked with a team to create a **C++ abstraction layer** to integrate an **RTOS** into a custom library built on top of STM32 HAL.
 - Implemented the **ThreadX submodule** and configured CMake to build the RTOS as part of the library.
 - Composed a ThreadX demo showcasing the creation and use of RTOS tools, including **threads, semaphores, and queues**, serving as a practical example for users to understand and integrate RTOS features into the library.
 - Designed a dedicated **UART** class for ThreadX, enabling thread-safe UART communication, that can be built upon for further threadsafe drivers.
- Collaborated with circuit board designers to ensure functionality on Vehicle Control Unit (VCU) PCB:
 - Tested **UART** and **CANopen** to ensure proper communication between the VCU and other boards.
 - Verified **CAN interrupt signal** transmission between microcontrollers to confirm reliable data exchange.
 - Used a **Digital Multimeter** to check continuity, detect short circuits, and validate reset signal transmission from the Hardware Monitor microcontroller to the Motor Controller MCU.

Arduino Temperature Signal Processing

01/2025

- Built a data collector using an Arduino Uno and a temperature sensing IC. Plotted raw data, mean, and standard deviation in MATLAB for further analysis.

Embedded VHDL and C Audio Processor

11/2024

- Created and verified a custom component in **VHDL** to implement high-pass and low-pass FIR filters for digital signal processing of .wav audio files. Established a system to allow real time switching between filters.
- Developed **C** code to load the audio file into SDRAM and read it at 48kHz. Determined filtering based on two switches, sent the audio data to the filter, and then transferred it from the filter to the audio component.

Embedded VHDL and C Servo Controller

10/2024

- Designed a custom **VHDL** component to control a servo motor using a **PWM signal**.
- Developed C code to implement the custom component to control the motor's sweep angles.

ARM Assembly Counter

09/2024

- Composed a counter on an Intel Cyclone V FPGA using VHDL and **Assembly**, where VHDL displayed the counter value on an LED display.
- ARM Assembly handled the counter logic and detected button inputs to increment or decrement the counter based on switch settings.