# Diego Lopez

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## Intro

Embedded systems engineer with a passion for designing and integrating embedded software and hardware.
**Available May 2025 to December 2025.**

## Education

**Rochester Institute of Technology - B.S. Computer Engineering Technology**
Expected May 2026
Dean's List Fall 2023
**Relevant Courses:** Embedded Systems Design, Digital Electronics, Signals, Systems and Transforms.

## Relevant Projects

**RIT Electric Vehicle Team** · Firmware Team · Rochester, NY 09/2023 - Present

- Worked with a team to create a **C++** abstraction layer is to integrate the **RTOS** into the library to enhance functionality.
- Implemented an Allegro ACS71240 current sensor to send data to an **ADC** and then display the info over **UART**.
- Programmed an STM32 Nucleo Microcontroller to read temperature and voltage using **I²C** and tested it with a Saleae Logic Analyzer and an **Oscilloscope**.
- Working with an Integration team to decide how to design the firmware of a Low Voltage Sub-System to safely power on a electric motorcyle.

**Embedded VHDL and C Audio Processor** 10/2024

- Wrote the **VHDL** code to make a custom component for a high-pass and low-pass filter for digital signal processing .wav files.
- Used **pointers in C** to be able access the IP and choose wether to pass the audio through the high-pass or low-pass filter.

**MSP432 Security System** 01/2024 - 02/2024

- Developed a security system using an ESP32 and a magnetic latch to send hardware interrupts to an MSP432 when the latch sensed the magnet was missing. The ESP would then send an SMS message letting the user know when it detected an interruption.

**MSP432 hardware interrupts** 01/2024

- Programmed an MSP432 connected to wheel motors to redirect them in the case of a collision.
- Coded an MSP432 to move and change course if there was something in its way utilizing ultrasonic sensing signals then send the data through **SPI**.

**Arm Assembly Counter** 09/2024

- Programmed an Intel Cyclone V **FPGA** using **VHDL** to count up in binary and display the count on LEDs. Utilized **Assembly** to create a counter that increments or decrements based on input from a switch and push button, with the result displayed on a seven-segment display.

## Skills

**Languages**
Arm Assembly
C
CMake
C++
Python
VHDL

**Environments and Software**
Altium Designer
Git
GitHub
MATLAB
Microsoft Office
LTSpice

**Embedded Systems**
FPGA
FreeRTOS
I²C
SPI
STM32 MCUs
TI MSP430/432 MCUs
UART

**Hardware**
Soldering/Crimping
Function Generator
Logic Analyzer
Oscilloscope