

# TODD ACHUFF

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## EDUCATION

### Carnegie Mellon University

Pittsburgh, PA

*Bachelor of Science in Electrical and Computer Engineering*

2022-2026

*Additional Major in Biomedical Engineering*

- **Cumulative GPA:** 3.91/4.0
- **Honors:** College of Engineering Dean's List
- **Relevant Courses:** 18-320 Microelectronic Circuits, 18-220 Electronic Devices and Analog Circuits, 18-240 Structure and Design of Digital Systems, 18-213 Introduction to Computer Systems, 18-300 Fundamentals of Electromagnetics, 18-412 Neural Technology: Sensing and Stimulation, 42-630 Introduction to Neural Engineering

## EXPERIENCE

### ASML

May 2025-August 2025

*Electronics Development Intern | Wilton, CT*

- Performed a feasibility study to migrate elevator assembly motor control from an end-of-life microcontroller to a NIOS II soft processor on an Intel Cyclone 10 FPGA, enabling future system redesign.
- Designed and assembled a custom printed circuit board assembly (PCBA) in KiCad to connect an FPGA Dev Kit, elevator motor, and power amplifier circuitry while maintaining proper signal integrity.
- Developed a Quartus project to implement I<sup>2</sup>C communication on the NIOS II processor in C, enabling manual motor control and feedback monitoring via DAC and ADC circuitry on the interface PCBA.
- Analyzed and documented a legacy PID position control algorithm written in PL/M-96, then translated it into C for future deployment on the NIOS II processor.

### Medtronic

June 2024-August 2024

*Software Engineering Intern, Cloud R&D | Northridge, CA*

- Designed a Full-Stack Web Application to validate and implement internal data APIs, ensuring seamless integration and reliable data exchange for third-party clinics to utilize.
- Managed the transfer of data from customer devices to an AWS Redshift database by establishing robust data pipelines using Python and SQL scripts.
- Partnered with a team to create a real-time data dashboard powered by Microsoft PowerBI.

### Carnegie Mellon University

August 2024-May 2025

*Teaching Assistant | Electronic Devices and Analog Circuits | Pittsburgh, PA*

- Managed 30+ student lab sessions, holding office hours one-on-one with students, and grading homework/exams.

## PROJECTS

### HACK112 Hackathon | Python

Spring 2023

- Collaborated with a team of four students on a Carnegie Mellon themed game implemented in Python.
- Built character sprites, game assets, collision, physics, and level-progression, completing baseline functionality for submission within 24-hours of beginning the project.

## ACTIVITIES

**Varsity Swimming and Diving**, Carnegie Mellon University

2022-present

**Sigma Phi Epsilon**, Vice President of Learning Community, Penn Theta Chapter

2023-present

**Tartan Neurotech (Member)**, Carnegie Mellon University

2023-present

## SKILLS

**Hardware:** KiCad, SystemVerilog, VHDL, Verilog, FPGA Design, Quartus Project Design, NIOS II, I<sup>2</sup>C, Cadence Virtuoso, PCB Design, Analog/Digital Circuit Design, Prototyping

**Programming Languages:** Python, C, LaTeX, SQL, x86 Assembly, Typescript, Arduino

**Software:** AWS, Microsoft Office, MATLAB, Git, Angular,

**Lab Equipment:** Oscilloscope, Digital Multimeter, Electronic Function Generator, Hand-Soldering, Biosafety Cabinet, Pipette Tools, Electronic Microscope, Spectrum Analyzer