Nathan Carlson

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Education

Bachelor of Science in Electrical Engineering, August 2021 - May 2025
The University of Alabama, Tuscaloosa, AL
Cumulative GPA: 4.0/4.0

High School Dual-Enrollment, August 2017 - May 2021
Community College of Allegheny County, West Mifflin, PA
GPA: 3.9/4.0

Work Experience

Power Electronics Research Understudy, *UA Department of Electrical and Computer Engineering,* Tuscaloosa, AL, September 2023 – Present

- Assisted in the design of a new silicon carbide power module utilizing jet impingement cooling technology
- Authored an academic paper on power module manufacturing methods
- Constructed power modules by programming an automatic wire-bonding machine and a solder convection reflow oven
- Ensured module quality through X-ray imaging
- Designed a PCB for MOSFET gate signal transmission and temperature sensing
- Learned how to conduct professional research

Circuit Design Engineer, *Johnson Outdoors,* Eufala, AL, Summer 2023

- Designed switch-mode power supplies for board-level power regulation
- Study and implementation of stable power supply feedback loops
- Learned how modern application-level electronic design is conducted

Project Assistant, *UA Department of Mechanical Engineering*, Tuscaloosa, AL, August 2022 – Present

- Wrote software for mobility device for young girl with cerebral palsy
- Developed motor control algorithms utilizing multi-sensor input
- Demonstrated willingness to learn new skills as they are needed
- Practiced working in a team environment

Skills

Software Skills

- C | Python | Microsoft Office | MatLab | Altium | KiCAD | Solidworks | LTSpice

Technical Skills

- Automatic wire-bonder operation | Solder reflow oven | X-ray imaging | Soldering iron | Oscilloscope | Waveform generator | Transistor I-V curve tester

Interpersonal Skills

- Ability to communicate technical details
- Uplift and motivate others in a team environment
- Fluent public speaker

Organizational Skills

- Have maintained a detailed calendar since Fall 2017
- Write all tasks into daily to-do list

Leadership Skills

- Led senior design team using a curiosity-based encouragement style
- Mentored a group of freshmen in through class discussions, study groups, and external events

Involvement

Senior Design, January 2024 – Present

- Developed a radar-based fall detection system, utilizing digital signal processing and artificial intelligence

Tutoring, Fall 2021 – Present

- Demonstrated willingness to help others by assisting classmates
- Improved ability to communicate technical details

General Art Club, November 2021 – March 2023

Chess Club, September 2022 – March 2023