ANDREAS SPEISS

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EDUCATION

Ohio State University, College of Engineering — Expected: May 2026
B.S. Electrical Engineering — GPA: 3.8

EXPERIENCE

Electrical Engineering Intern, *American Electric Power (AEP)*, Columbus, OH — May 2024 - Present

- Tested and calibrated protective relays using Doble equipment to keep all settings compliant with NERC standards.
- Worked with substation engineers and field crews to diagnose relay and equipment problems, resolving most high-priority outages on the same day.
- Entered relay settings and equipment data into Maximo, improving the accuracy of protection studies and coordination reviews.

Undergraduate Research Assistant, *Power Electronics Lab*, Columbus, OH — Jan 2024 - Present

- Built and tested a DC-DC buck converter for solar power applications, selecting switching settings to reduce energy loss and electrical noise.
- Measured efficiency and thermal behavior of MOSFET and IGBT devices, reaching 85 percent efficiency at 5A output.
- Analyzed oscilloscope data using MATLAB to evaluate switching behavior, ripple, and filter performance.
- Followed high-voltage safety procedures while working with circuits up to 400V, including grounding and current-limiting protections.

PROJECTS

Bluetooth-Controlled Automated Blinds, Independent Project — Jan 2024 - Apr 2024

- Blackout window blinds raised and lowered by a rotating motor controlled by a mobile application.
- Programmed Arduino (C++) to drive motors with Bluetooth and clock modules for wireless manual and routine control.
- Developed companion Android app using MIT App inventor.

PCB-Based Analog Audio Frequency Detector, University Project — Sep 2023 – Dec 2023

- Analog circuit which drives red and green LEDs corresponding to the magnitude of low/high frequency signal content.
- Designed filter circuits in Multisim according to audio band specifications.
- Built op-amp and RC filter circuits to separate audio content into high and low frequency bands.

Simple 8-Bit CPU, University Project — May 2023 – Aug 2023

- Designed a CPU in Quartus Prime using VHDL + schematic entry for datapath, control logic, decoder, more subsystems.
- Implemented an 8-instruction ISA with 8-bit data bus, accumulator, and 32 bytes of memory.
- Developed a custom assembly language and Excel-based assembler to encode and test programs.

SKILLS

- **Software:** C, C++, MATLAB, Excel, Java, Python
- **Hardware:** PCB Design (KiCAD), Circuit Simulation (Multisim), VHDL (Quartus Prime), Soldering, Oscilloscope, Fusion 360