JACK BURKY

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PROFESSIONAL SUMMARY

Electrical Engineering student with hands-on experience in PCB design, low-noise circuits, and hardware verification. Currently enrolled in ASIC design coursework, focusing on RTL development, testbench creation, and digital systems design, with a capstone project on building an AI accelerator. Skilled in SystemVerilog, C/C++, Python, and analog circuit design, with a strong interest in next-generation computing and large-scale chip design projects.

EDUCATION

Purdue University - West Lafayette **September 2023 - December 2026**
Bachelor's, Electrical Engineering *GPA: 3.81*
- Current Coursework: ASIC Design, Signals and Systems, Microprocessors, Electromagnetics
- Dean's List & Semester Honors: Fall 2023 - Spring 2025

PROFESSIONAL EXPERIENCE

Lake Shore Cryotronics **Westerville, OH, USA**
Electrical Engineering Intern *May 2024 - Present*
- Redesigned, assembled, and verified ultra-low noise amplifier using more efficient JFETs resulting in a 65% noise reduction.
- Developed Python test scripts to automate frequency spectrum generation from temperature monitors (5 to 20 Kelvin) for PID control characterization.
- Designed, prototyped, and assembled a simulated temperature sensor capable of emulating temperatures from 1 to 400 Kelvin.
- Implemented a power management IC into a rework of an existing embedded system to allow for a controlled shutdown sequence.
- Designed a PCB and shielded enclosure to interface a temperature monitoring system with four external EMI-sensitive sensors and four cryostat heaters.
- Developed and assembled 10+ shielded cables for low noise systems.

Electronics Assembler *May 2023 - August 2023*
- Documented the fabrication process of Hall effect sensors via lithography and created detailed assembly diagrams.
- Identified and corrected defects to bring completed products in line with tolerances.
- Wrote Python test scripts to characterize a potential anomaly in temperature readings.
- Assembled precision temperature monitors per technical specifications and production guidelines.

Purdue University - West Lafayette **West Lafayette, IN, USA**
Research Assistant *October 2024 - Present*
- Designed and assembled PCBs to characterize resistors and capacitors below 5 Kelvin.
- Developed test scripts to automate semiconductor characterization data collection.
- Characterized Lock In Amplifier response given different filters and time constants allowing for quick selection of parameters.

Teaching Assistant *January 2024 - Present*
- Served as a Teaching Assistant for CS 159 (Introduction to C Programming).
- Taught a weekly 30-student lab section.
- Hosted weekly office hours for students needing homework or lab assistance.
- Graded and left feedback on weekly labs and bi-weekly homework assignments.

PROJECTS & OUTSIDE EXPERIENCE

Engineers Without Borders **West Lafayette, IN, USA**
Operations Team *September 2023 - August 2025*
- Collaborated with a 7-person construction sub-team to plan a water distribution system in Rubona, Rwanda.
- Developed a 28-page operations and maintenance manual to ensure proper use and safety of water distribution system.
- Created a physical and chemical safety plan for the construction team.

LED Album Cover Display *June 2024 - August 2024*
- Built a Python-based LED matrix display using Raspberry Pi to show the album art of the currently playing Spotify track.
- Developed code that connects to the Spotify API to retrieve album art and updates the 64x64 pixel display in real time.
- Published the project on GitHub, showcasing the code, design, and implementation process for public review and collaboration.

SKILLS

SystemVerilog, RTL Design, Cadence, QuestaSim, Analog Design, Low-Noise Design, C/C++, Python, Hardware Verification