Skyler Lang

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EDUCATION

B.S., Computer Engineering | University of Illinois at Urbana-Champaign **Expected 2027**
Relevant Coursework: Signal Processing, Computer Systems & Programming, Digital Systems Laboratory, Data Structures and Algorithms, Robotics

TECHNICAL SKILLS

Hardware Skills:
Circuit & PCB Design (KiCad, LTspice)
Circuit Testing & Debugging (Oscilloscope, Multimeter)
Embedded Systems & Microcontrollers (Arduino, SPI)
Digital Design & FPGA Development (Vivado, Verilog)
Power Electronics & Signal Processing
Hardware-Software Integration (ROS)

Software Skills:
Programming Languages: C++, C, Python, Java, SystemVerilog, HTML/CSS, JavaScript
Tools: Git/GitHub, CLI, GDB, Valgrind
Embedded Systems & Low-Level Programming
Software Development (Frontend & Backend)
Algorithms & Data Structures

EXPERIENCES

Embedded Systems Engineer | iRobotics (Micromouse Project) **2024-2025**
- Designed the hardware system for a Micromouse robot, including microcontroller integration, SPI communication, sensor interfacing, and power management to enable autonomous navigation and maze mapping.
- Contributed to the development of a maze-solving algorithm using a modified flood-fill approach to dynamically map unknown environments and compute the fastest escape path under hardware constraints.

Electrical Engineer | eFold **2024-2025**
- Researched the VESC tool's firmware architecture, motor control settings, and voltage sensing mechanisms to understand its compatibility with high-voltage systems.
- Modified VESC hardware and firmware to support a 12S2P battery, improving battery life by 17% and enabling safe high-voltage operation through MOSFET and voltage divider redesigns.

PERSONAL PROJECT

Wireless Guitar System **2024-2025**
- Designed and developed a wireless guitar system featuring ~10 ms analog-to-digital conversion latency (MCP3008) and low-noise audio amplification (NE5534), preserving signal clarity while maintaining playability.
- Engineered embedded systems solutions using Arduino Nano (ATmega328) and SPI communication, improving real-time signal processing and ensuring seamless data transmission for high-performance applications.
- Prototyped and tested the circuit on a breadboard, using oscilloscopes, waveform generators, and LTspice simulations to debug signal integrity and verify performance before designing the schematic and PCB in KiCad.

LEADERSHIP & OUTREACH

Electrical Team Lead | iRobotics **2024-2025**
- Led a cross-functional team to design and build a Micromouse robot, overseeing hardware design (schematic, PCB design, 3D printing), software development (Arduino Nano, PID control), and sensor integration.
- Managed project timelines, delegated technical tasks, and collaborated with team members to debug and optimize performance using oscilloscopes and Arduino console, ensuring the robot efficiently mapped and solved mazes.

Cofounder and Vice President | Byte Sized Coders **2019-2023**
- Designed and delivered a comprehensive year-long programming curriculum, including Python and algorithm simplification, utilizing Moodle and other tools to effectively instruct and engage a class of 30 students