

Andrew Lu

andrewlu.org | 12luandrew@gmail.com | linkedin.com/in/andrewlu2 | Princeton, NJ

Education

Purdue University, West Lafayette, IN
Bachelor of Science, Electrical Engineering

Aug 2025 - Dec 2028
GPA: 3.87/4.00

Relevant Experience

System-on-Chip Extension Technologies (SoCET) | [Game Demo Link](#)

Aug 2025 – Present
West Lafayette, IN

Undergraduate Researcher

- Developed an Application-Specific Integrated Circuit (ASIC) for tapeout in SystemVerilog to run the classic Asteroids game
- Implemented game logic state machine, angle lookup table, and top module in SystemVerilog
- Verified all modules with testbenches and successfully emulated the game on an FPGA, with GDSII file sent for chip tapeout

Purdue Space Program Active Controls

Aug 2025 – Present
West Lafayette, IN

Avionics Member

- Spearheaded PCB design in KiCad for a power monitor board measuring power in avionics on self landing rocket ASTRA as a part of the Collegiate Propulsive Lander Challenge, withstanding 60 amps of current
- Designed buck converter schematics and PCB layouts in Altium Designer for power distribution across 36V, 12V, 5V, and 3.3V components on rocket

Projects

Single Cycle RISC-V CPU | [Link to GitHub](#)

July 2026 – August 2026

- Implemented a single cycle central processing unit (CPU) according to the RV32I instruction set in SystemVerilog to gain deeper understanding of computer architecture
- Created and verified RTL design of each submodule and top module with Icarus Verilog and GTKWave, successfully simulating ADD, SUB, AND, OR, ADDI, ORI, LW, SW, and BEQ assembly instructions
- Deployed code onto an FPGA and verified functionality of CPU with 32-bit instructions covering R, I, S, and B type instructions, fitting the entire architecture in under 5,000 lookup tables (LUTs)

6-Axis Robotic Arm | [Link to GitHub](#)

Mar 2026 – Present

- Designing electronics and software of a 6-axis custom robotic arm to develop deep intuition on their entire design process and optimization for practical use
- Simulating all joints of the arm with ROS2, allowing position updates to be wirelessly sent to a Raspberry Pi Pico W mounted on an onboard PCB
- Designed PCB in KiCad and manufactured with JLCPCB, distributing 24 volts and 6 amps across Raspberry Pi Pico W, MT6701 magnetic encoders, and stepper motors utilizing I2C for communication between components
- Carefully selected all electronic components to maximize efficiency and reusability of all boards, totaling to under \$100

BeeAlive Sensor Fusion Project | [Link to DevPost](#)

April 2026

- Engineered off the grid beehive monitoring box to continuously monitor the health status of bee hives, addressing Colony Collapse Disorder (CCD) warning signs through gas, temperature, and humidity sensor data monitored on an ESP32
- Prototyped sensor integration on breadboard and then soldered components on a prototype board
- Built in 36 hours, placing 3rd Place in the StarkHacks Hardware Hackathon in the Analog Devices Sensor Fusion Track

Digital USB 2.0 Transceiver | [Link to Paper](#)

Oct 2025 – Dec 2025

- Designed and simulated NRZI encoding/decoding, bit stuffing/unstuffing, and top level modules in SystemVerilog to simulate USB 2.0 communication protocols
- Verified transmitting and receiving bytes of data with testbenches of top module written in SystemVerilog and confirmed their output waveforms match expected behavior

Skills

Hardware: Altium Designer, KiCad, FPGA Design, ASIC Design Flow, Autodesk Fusion 360, LTSpice, Git, Linux/Unix, Protocols (I2C, SPI, USB, Wi-Fi, Bluetooth), Robotics (ROS2, URDF, RViz, Gazebo, MoveIt2)

Programming: C, C++, Java, MATLAB, Python (PyTorch, NumPy, Matplotlib), Verilog, SystemVerilog

Lab Equipment: Multimeters, Oscilloscopes, Soldering

Other: Working Proficiency in Mandarin and Spanish