

JEFFERSON ZHANG

Champaign, IL | (217) 954-3063 | jeff-business@lutet.industries
[LinkedIn](#) | [GitHub](#) | [Portfolio](#)

EDUCATION

University of Illinois Urbana-Champaign

Bachelor of Science in Computer Engineering, Minor in Mathematics

Honors: ECE James Scholar, IEEE-HKN Top Initiate Award (Spring 2024)

Expected May 2026

GPA: 3.97/4.00

RELEVANT COURSEWORK

ECE 385 Digital Systems Laboratory (FPGA), ECE 391 Computer Systems Engineering (OS), ECE 395 Advanced Digital Projects Laboratory, ECE 210 Analog Signal Processing, CS 225 Data Structures

****ECE 411 Computer Organization & Design, ECE 425 VLSI System Design, ECE 340 Semiconductor Electronics**

WORK EXPERIENCE

Rivian Automotive

Normal, IL

Engineering Intern – Electrical Control Units

May 2024 – Aug 2024

- Conducted bench testing and triage for ECU units using **CANalyzer** and other firmware tools, resolving **15+ issues** relating to end-of-line failures.
- Engaged in **root cause analysis** for ECU issues affecting secure element, valve drivers, and high side drivers, supporting hardware, firmware, and manufacturing teams.
- Developed an **automated testing tool** for triaging TCMs using **PyQt6** and **pytest**, reducing the average triage time by **74%** and number of manual steps from **9 to 1**.
- Implemented a **Kanban board** for ECU triage to document repeated and similar failures and find solutions for known failures, increasing the share of reused ECUs from ~30% to **55%**.
- Created a **real-time data dashboard** to identify recurring ECU failures and root causes, eliminating a significant backlog of unresolved issues and refocusing team efforts on proactive solutions.
- Coordinated a **cross-functional team** to implement a containment for a **major BMS-related line disruption**.

OTHER EXPERIENCE

Eco Illini Supermileage

University of Illinois Urbana-Champaign

Lead Electrical/Firmware Engineer

May 2024 – Ongoing

- Manage an interdisciplinary team to develop and implement a **new zonal ECU architecture**.
- Pioneer a robust **RTOS-based ECU software stack**, enhancing vehicle communication reliability through use of automotive industry standards (UDS on CAN, J1939-17)
- Design **ECU hardware** including **schematics, PCB layouts, BOMs**, and **electromechanical assemblies**.
- Mentor new recruits to develop skills in **component engineering**, embedded systems, automotive hardware.

Electrical/Firmware Engineer

Aug 2023 – May 2024

- Led an effort to implement **CAN bus**, standardizing vehicle communications and reducing data loss to **<1%**.
- Created a **test system** for firmware verification, detecting **10+ bugs** in CAN communications code.
- Developed schematics, PCB layouts, and firmware for **5+** microcontroller modules.
- Wrote over 40 pages of detailed **hardware documentation**, streamlining the onboarding process and significantly improving onboarding efficiency, allowing new members to learn independently.

Illini Rhythm Syndicate

University of Illinois Urbana-Champaign

President

Jan 2024 – Ongoing

- Found an organization of **110+ students** focused on **reverse-engineering** arcade rhythm game cabinets.
- Evaluate **novel sensing techniques** (UWB, Velostat, piezoelectrics) to build experimental controllers.

Lyding Group

University of Illinois Urbana-Champaign

Undergraduate Research Assistant

Oct 2024 – Ongoing

- Characterized and tested the electronic characteristics of **experimental graphene nanotube FETs**.

PROJECTS

Homebrew FPGA GPU

Sep 2023 – Dec 2023

- Independently conceptualized and developed a GPU for **MicroBlaze** on the **Xilinx Spartan-7**.
- Implemented **polygon rendering** to a DRAM-based video buffer and subsequent display over HDMI.
- Implemented **kernel-based upscaling** functionality through nearest-neighbor and bilinear interpolation.

SKILLS

Programming: Python (8yrs), C (6yrs), C++, Verilog/SystemVerilog, Zig, D, bash, fish, Tcl, SQL

Hardware: STM32, RP2040, AVR, ARM, MicroBlaze, Arduino, MicroPython, RISC-V, USB, I2C, SPI, UART, CAN, AXI

Software: OpenCV, NumPy, Qt6, Pandas, QEMU, FreeRTOS, make, cmake, Flask, raylib, Tk

Tools: Linux, Altium, KiCAD, Fusion 360, Vivado, Vitis, Quartus, gdb, PSpice, oscilloscopes, function generators