

Sihan Chen

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EDUCATION

University of Illinois at Urbana-Champaign

Expected Graduation: May 2025

B.S. Electrical Engineering. Minor in Computer Science.

GPA: 3.74/4.00

James Scholar Honors. Junior Class Standing.

Relevant Coursework: Electronic Circuits, Computer Systems & Programming, Analog Signal Processing, Digital Signal Processing, Probability Theories & Statistics, Field and Waves, Electricity & Magnetism.

EXPERIENCE

Illini RoboMaster | Embedded System Engineer

September 2022 - Present

- Cross-compiled in Linux on an x86-64 architecture and loaded the compiled executable to STM32.
- Involved in the design of control systems for regulating M3508 Motors' position and speed with CAN bus.
- Adjusted PID with Customized UI and used DMA to avoid time-consuming serial interrupt.
- Calibrated the IMU to recognize the tripod head's position by applying a complementary filter to reduce drift.

NASA L'Space Mission Concept Academy | Electrical Lead

September 2022 - January 2023

- Utilized a spectrometer to analyze the composition of an asteroid to map trajectories and avoid impact events.
- Determined the feasibility of different tomography waves like X-ray/Gamma Ray or Resonant Ultrasound.
- Implemented a power system model to distribute the energy within a satellite for Asteroid Misdirection.

University of Illinois at Urbana-Champaign | Physics Lab Assistant

January 2022 - May 2022

- Held office hours and lab sessions on a twice-per-week basis to teach Electricity & Magnetism.
- Collaborated with Professors and TAs to conduct research on in-lab data to enhance the learning experience.

PROJECTS

Autonomous Chassis | Circuit Design

- Prototyped a light-controlled motor with an electronic balance system to eliminate deflection in a straight path.
- Adjusted impulse signal gaps to control ultrasonic sensors and delay-timer circuits to adjust sensibility manually.
- Implemented an analog circuit to achieve automatic turning when facing obstacles or going along the wall.

Electronic Lock | Quartus, Arduino, Oscilloscope

- Designed series-load registers with de-muxes to save and reset passwords by changing different key entries.
- Applied analog circuits to create PWM with a specific changing rate to control servo motors.
- Replaced microcontrollers with pure logic circuits to cut costs and reduce energy waste.

Coin-Based Vending System | Quartus, Circuit Design

- Built FSMs to help the vending machines differentiate the value of coins and move to the next state.
- Used a pre-programmed IC (Atmel, Attiny 13) to simulate different FSM states depending on the Coin Types.
- Ask the vending machine to decide whether to accept or refuse a transaction after entering the coins.

SKILLS

Tech: STM 32 Arm, Arduino-IDE, Quartus, AutoCAD, Oscilloscopes, PID, CAN Wiring, KiCAD, LTspice

Programming/Analysis: C, C++, Java, Python/Numpy, MATLAB/Simulink.

Languages: Native-level Mandarin and Fluent English.