Zhaojin Chu

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EDUCATION

Carnegie Mellon University | Pittsburgh, PA — Expected May 2028

Bachelor of Science in Electrical & Computer Engineering

- GPA: 3.86/4.00
- Coursework: 18-240 Digital Systems, 18-290 Signals & Systems, 15-122 Imperative Computation (C)

SKILLS

Languages: C, Python

Embedded & Robotics: STM32, ESP32, ARM Cortex-M, SPI/DMA, MIDI, KiCad, ROS, Qt, SOFA, PyTorch, Linux

EXPERIENCE

CMU Microdynamic Systems Laboratory | Undergraduate Researcher — Jul 2026 – Present

- Replaced the $3,000 desktop controller of a 6-DOF maglev haptic device with a $300 board inside it.
- Ported the firmware off a legacy QNX real-time machine and its PCI DAQ onto an STM32H7 (ARM Cortex-M).
- Brought up an AD7606 ADC and LTC2688 DAC over SPI with DMA against a 15 μs sensor-to-actuator budget.
- Designed a 7-channel DRV8262 amplifier replacement PCB in KiCad with INA240 current sensing and 2512 shunts.
- Wrote a driver exposing the MLHI haptics API to SOFA and updated 8 device demos.
- Built a PyQt GUI over the ballbot's ROS nodes and a force-feedback teleoperation mode on the haptic device.
- Demoing the haptics and ballbot work at IROS 2026 and CMU Robotics & AI Discovery Day.

Logic Labs | Founder and Lead Developer — Jan 2024 – Feb 2026

- Built a Node.js/React storefront with Stripe checkout for an electronics program serving 60+ students.
- Designed the kits and curricula, and handed the codebase to a student team that still maintains it.

PROJECTS

RoboOrchestra | Project Lead, 40+ members — Nov 2025 – Present

- Built a conductor mode mapping hand gestures on camera to drum hits by screen region.
- Rewrote the instrument firmware on ESP32 Feathers and defined a platform-independent MIDI protocol.
- Added w.FL antennas to the ESP32 link for longer-range communication between instruments.

ReBin | TartanHacks Best Hardware, 1,000+ participants — Feb 2026

- Trained a YOLOv8n waste classifier and deployed it on a Raspberry Pi 5, built end to end in 24 hours.
- Shipped a facilities dashboard with utilization forecasts and heatmaps.

License Plate Recognition Model | American University in Dubai — Jan 2025 – Dec 2025

- Trained CNN plate detectors in PyTorch on 20,000+ Dubai plates to 0.96 mAP@0.5, 0.78 mAP@0.5:0.95.
- Exported to ONNX and ran at ∼5 ms per 640×640 frame on a Jetson; evaluated quantization for edge use.

LEADERSHIP

RoboClub | Executive Board Officer — Mar 2026 – Present

- Oversee $4,000+ in annual funding across 20+ robotics and engineering project teams.

Computer Hardware Society | President — Sep 2023 – Jul 2025

PUBLICATIONS & AWARDS

Perception of Generative AI in the Gulf | Springer Nature — Oct 2025

- Analyzed 500+ survey responses with SEM; presented at Cambridge and published by Springer Nature.

Netcraft Computer Science Prize | Global Top 100 — Sep 2025