Chenyu Zhu

Portfolio: https://zhu-chenyu.github.io/

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Education

- **Northwestern University** — *Evanston, IL*
  M.S. in Robotics — *Sept. 2025 – Dec. 2026*
- **University of California, Berkeley** — *Berkeley, CA*
  Exchange Program — *Jan. 2024 – Jun. 2024*
- **Southeast University** — *Nanjing, China*
  B.S. in Automation — *Sept. 2021 – Jun. 2025*

Skills Summary

- **Programming Languages**: Python, C, C++, Assembly Language(x86), MATLAB
- **Skills**: ROS 2, Linux, Git, CAD, SLAM, Motion Capture, Parallel Computing, Path Planning, Simulink
- **Languages**: English (Professional), Mandarin (Native), Japanese (Basic Communication)

Experience

- **Robotics Research Intern – Intuitive Surgical** *Shanghai China, Jun. 2024 – Aug. 2024*
  - Operated the Da Vinci System's daily startup/shutdown, troubleshooting in engineering interface.
  - Conducted experiments to obtain cooling curves for different scalpels, then fit into functions.
  - Prepared daily setups, operated robot, and maintained data logs for 600+ times of tests.
- **Platform Engineer Intern – GE Healthcare** *Wuxi China, Jun. 2023 – Aug. 2023*
  - Designed, coded, and controlled a competition robot from scratch, finishing all tasks in two weeks and achieving 3rd place among 10 teams.
  - Wrote and debugged programs for PCI control on PC devices.
- **Embedded System Intern – Cryofocus Medtech** *Shanghai China, Jun. 2022 – Sept. 2022*
  - Implemented PI control to enhance precision by 12% of a cryogenic flow regulator.
  - Assisted in user-interface design and user-experience refinements for a cryogenic flow generator.

Projects

- **Human-in-the-Loop Compliant Drone with LiDAR Avoidance** *Jan. 2026 – Mar. 2026*
  - Developed a PX4-based quadrotor that estimates human-applied external forces and responds in real time, enabling physical human–drone interaction.
  - Implemented a potential-field obstacle avoidance controller using 2D LiDAR.
- **LiDAR-Based EKF SLAM from scratch on TurtleBot3** *Jan. 2026 – Mar. 2026*
  - Implemented EKF SLAM from scratch, jointly estimating robot pose and landmark positions by fusing wheel odometry with range-bearing observations from a LiDAR.
  - Built a landmark detection pipeline using point clustering, circle-fitting regression, and data association; deployed on a physical TurtleBot3.
- **Vision-Guided Domino Placement with Franka Emika Robot** *Nov. 2025 – Dec. 2025*
  - Built a vision-guided system for detecting, planning, and placing dominoes using a Franka robot.
  - Integrated perception, motion planning, and contact-aware execution on real hardware.
- **Picking Up a Pen Using Robot Arm and RealSense Camera** *Sept. 2025 – Sept. 2025*
  - Coded a robot arm to locate a pen with a separate camera, then pick it up and drop it in a box.
  - Planned collision-free paths around obstacles; finished in 2 days.
- **Hybrid Electric Vehicle Torque Distribution Study** *Sept. 2023 – Jan. 2024*
  - Built a simulated hybrid vehicle for commute and long-distance scenarios.
  - Optimized torque-coupler logic, increasing mileage by 74% and reducing emissions by 12%.

Patent

- **Saccule folding mechanism, CN 220988900 U**: A structure designed to fold a balloon after inflation for medical treatment in blood vessels. Filed: 2024.05.24.
  URL: https://patents.google.com/patent/CN220988900U/en