Chenhao Li

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Education

Carnegie Mellon University, MS in Mechanical Engineering — Expected Jun 2026

- **Relevant Courses:** Modern Control, Robot Learning, Robot Dynamics, Computer Vision, Machine Learning

Worcester Polytechnic Institute, BS in Mechanical Engineering — Aug 2021 – May 2024

- **Relevant Courses:** Control Engineering, Kinematic Analysis, Mechanical Design, Embedded Systems

Skills

- **Programming:** Python (PyTorch, TensorFlow, OpenCV, Scikit-learn), C++, MATLAB, Git
- **Tools:** IsaacSim, IsaacLab, ROS, Mujoco, PyBullet, Gym, Docker, SolidWorks, Onshape, Creo, FEA, ANSYS
- **Methods:** Reinforcement Learning, Imitation Learning, PID, LQR, Computer Vision, Model Evaluation, Serial, CAN, Embedded Systems (STM32, Arduino, Raspberry Pi), CAD, CNC, 3D Printing, GD&T

Work Experience

Unitree Robotics — July 2025 – August 2025
Associate Engineer: Robotics Software Engineer Intern — Hangzhou, China

- **Video-to-Real** deployment on the Unitree G1: applied **reinforcement learning–based sim-to-real transfer**, converting human motion videos into robot-ready trajectories and executing them with a **reference + residual policy** controller; achieved stable, robust **whole-body humanoid motions** through joint/torque mapping, safety limits, and on-robot tuning.
- Built a **3-DOF head** and its **Isaac Sim** twin: authored URDF/USD and tuned **inertial, collision, PD limits** for **sim-to-real** consistency.
- Enabled closed-loop **whole-body teleoperation** for Unitree G1 by integrating AVP head/hand input with a **custom 3-DOF head camera**, achieving long-horizon demos with low drift and stable execution.

SafeWorld — May 2025 – Jun 2025
Robotics Engineer Intern — Palo Alto, California

- Developed a **robot safety agent** that converted **user-defined safety specs** into **Isaac Sim** test scenarios, automatically scoring **policy compliance** and improving **HRI safety margins**.
- Created high-quality simulation assets in **Isaac Sim** (URDF→USD, collision/inertial tuning), enabling **scalable deployment** of safety evaluation tasks across diverse environments.

Cheguangjiao New Energy — May 2024 – Aug 2024
Automation Engineer Intern

- Automated a precision inspection & correction station: integrated **machine vision** (OpenCV) for bend detection and **closed-loop motion control** of a **roller-based straightening mechanism** (encoders/limits), reducing operator dependence and stabilizing cycle consistency.
- Built a **data pipeline** for traceable QA: **Python** logging of measurements and outcomes, automatic **pass/fail** classification, and batch **report generation** to accelerate verification and change decisions.
- Engineered **fixtures/DFM** for repeatable alignment and serviceability; designed a **light-box enclosure** to standardize illumination, improving **imaging stability** and inspection reliability.

Research Experience

CMU Safe AI Lab — *Human2LocoMan (RSS 2025)* — Dec 2024 – Apr 2025

- Built and calibrated a vision-based teleoperation pipeline, including data collection from VisionPro for human hand tracking and teleoperation demonstrations on both VisionPro and Locoman platforms.
- Conducted multi-round evaluation of MXT, ACT, PPO and HIT policies, analyzing robustness under embodiment shift and generalization across unseen tasks.

WPI's Surface Metrology Research Laboratory — Jan 2023 – May 2024

- Measured **surface roughness** using **Sensofar** optical profilometry and processed profiles in **MountainsLab** for parameter extraction.
- Ran flow/pressure-drop experiments to study **roughness–friction correlations**; analyzed results with ANOVA and reported confidence.