Zehao Li

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EDUCATION

New York University **New York, NY**
Master of Mechatronics, Robotics and Automation Engineering (GPA 3.89/4.0) *Sep 2025 – Exp. May 2027*
- Relevant Coursework: Fundamental for Robotics, Mathematics for Robotics, Mechatronics

Tongji University **Shanghai, China**
Bachelor of Engineering in Mechanical Engineering *2021 – 2025*
- Honors: First prize in 2025 and Third prize in 2023 and 2024 National RoboMaster Competitions

INTERNSHIP EXPERIENCE

Xiaomi Robotics Lab **Beijing, China**
Robotics Simulation and Mechanical Research Intern *May 2026 – Present*
- Reproduced the RoboGrammar framework for graph-grammar-based robot morphology generation and simulation optimization, and explored its transfer from Unitree-based platforms to the Ultron V3.0 humanoid robot for Sim2Sim and Sim2Real validation.
- Simulated the upper-limb workspace, collaborative workspace, and vision-guided collaborative workspace of the Ultron V3.0 humanoid robot using GJK collision detection, and analyzed full-body locomotion joint torques and wrist mechanism collision issues with MuJoCo and Simulink Simscape.
- Conducted research on fiber-based artificial muscles and rebuilt a MATLAB/URDF-based parser for humanoid and wheeled robot models.

Wuji Tech **Shanghai, China**
Mechanical Engineer Intern for humanoid robot head design and robotic hand *Aug 2024 – Oct 2024*
- Designed a 3-DOF neck stabilizer by applying humanoid kinematic constraints to define workspace, load paths, and joint architecture.
- Built statics simulation environments for a full-DOF exoskeleton arm and performed structural optimization on CNC components with manufacturability constraints; conducted endurance testing on a 20+ DOF dexterous robotic hand, validating long-term reliability under dynamic loads.
- Delivered production-ready components with improved tolerance, supporting real-world deployment.

Puncture Robotic **Shanghai, China**
Mechanical Engineer Intern for Follicle Holding Mechanism in Hair Transplantation *Apr 2024 – June 2024*
- Led a mechanical redesign reducing motor dependence and improving space efficiency; optimized casing and bolt-hole layout for higher assembly accuracy and long-term reliability, which contributed to the company's reusable mechanism library for future product lines.
- Designed a production-ready spring-based locking/unlocking mechanism, validated performance via simulation and ensured immediate prototype-to-product adoption.

ACADEMIC PROJECTS

Riviere Robot Lab | New York University **New York, NY**
Mechanical Design and Building of Micro-gravity Robot *Sep 2025 – Present*
- Led mechanical review and restructuring for the ATMOS open-source release and RRL M3 bimanipulation platform, improving structural reliability and manufacturability.
- Developed MuJoCo simulations for humanoid robot validation and workspace analysis of bimanual manipulation tasks.
- Implemented Q-Learning and DQN from scratch for robotic arm manipulation experiments, including drawer-opening tasks.

Robot Development and Optimization | RoboMaster **Shanghai, China**
Mechanical Design and Autonomous Robot Sub-team Lead *Sep 2022 – Jan 2025*
- Led a 20-person engineering team redesigning a mobile autonomous platform equipped with LiDAR and camera sets for full-surround perception. Lowered the platform's center of gravity, reducing total weight to improve stability and agility.
- Designed custom single-stage reduction gearboxes by matching gear ratios to the brushless motor's optimal torque–speed operating region, optimizing torque output under strict power limits.
- Engineered a Watt-linkage omnidirectional wheel system and slider-rail suspension, achieving 45% chassis weight reduction, 40% drivetrain weight reduction, and 300% increase in spin speed.

TECHNICAL SKILLS

Programming : Python, C++ , MATLAB | **Hardware** : Actuator design, gearbox design, robotic mechanisms
Robotics & Simulation : MuJoCo, Mechanical Modeling, Statics Simulation
Design & Analysis : SolidWorks, Fusion 360, AutoCAD, Ansys