

LU ZHUOYI

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EDUCATION

- Aug 2022 – Jun 2026 **Nanyang Technological University, Singapore** (CGPA: 4.64/5.00, Top 5%)
Bachelor of Mechanical Engineering
Robotics and Mechatronics Stream, Minor in Mathematics
- Jun 2025 – Aug 2025 **Rice University, Houston, Texas, United States of America**
Summer Research Intern @RobotPI Lab under Prof. Kaiyu Hang
- Sep 2016 – Jun 2022 **Desheng School, Guangdong, China**
International Baccalaureate Diploma (IBDP): 41/45

SKILLS

- Programming & Tools** Python, Anaconda/Conda, MATLAB, C/C++ , Linux Bash
- Robotics & Middleware** ROS1/2, MuJoCo, Maniskill
- Hardware & Embedded** Arduino, SolidWorks, Autodesk Fusion, CAN protocol

RESEARCH EXPERIENCE

- Robotics Research Centre (RRC), NTU Singapore** May 2024 – Present
- Research on Series-Elastic Actuator model of HEBI motor. Designed experiments for motor parameter estimation e.g., Armature (Torque-Current), Velocity Constant (Voltage-Velocity) with PWM and PID control.
 - Built dual planar system consisting of two 2DOF robots and 6DOF arms with HEBI motors. Establish Teleoperation based Impedance control through Forward Kinematics and Jacobian.
 - Research on Motion Planning based on Manipulation Potential under Quasi-Static Assumption. Trajectory/DMP Optimization based on Black-Box Optimization (BBO).
- Rice University, Houston, Texas, United States of America** Jun 2025 – Aug 2025
- Develop the codebase (e.g., Keyboard, XBOX joystick and VR Teleoperation Control) for XLeRobot: Fully Autonomous Household Dual-Arm Mobile Robot for \$660 (<https://github.com/Vector-Wangel/XLeRobot>).
 - RGB/Semantic Segmentation based Reinforcement Learning (PPO) via ManiSkill and zero-shot real-world deployment. Developed based on Stones's LeRobot Sim2Real codebase.
- Delta Electronics, Singapore** Jan 2025 – May 2025
- Gazebo and Mujoco Simulation of quadruped jumping using virtual spring-damper system in each leg' hip and foot frame. Real World Deployment through Unitree Mujoco and ROS2.
 - Integrate Mujoco with Pinocchio Library for a basic simulation framework in C++ for Manipulation/Locomotion Tasks.

PROJECTS

- Undergraduate Research Program (URECA) under Prof. K Jimmy Hsia** Jul 2023 – Jun 2024
- Developed a new frontal photopolymerization strategy for functionally-graded materials based on UV attenuation. Published in URECA Papers and Posters.
- Kaggle Competition in Modeling earthquake richter and impacts** Aug 2023 – Dec 2023
- Model earthquake damage grades in Nepal using location and construction data from Kaggle Dataset.
 - Data cleaning, one-hot encoding, visualization, Random Forest, Logistic Regression, and KNN applied.

PUBLICATIONS

- Yang, L., Turlapati, S. H., **Lu, Z.**, Lv, C., & Campolo, D., “A Planning Framework for Stable Robust Multi-Contact Manipulation,” in *Proc. IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, Hangzhou, China, Oct. 2025.

EXTRACURRICULAR ACTIVITIES

Xinyuan Charity Center, Guangdong, China

Aug 2020 – Aug 2021

- Organized drawing lessons for autistic children to help them adapt to school and build social relationships.

Residential Hall Garden Leader, NTU Singapore

Aug 2023 – Present

- Led weekly gardening activities, including seed germination, watering, and tool maintenance.

HONORS AND AWARDS

- Dean’s List Certificate AY2023/24 (Top 5%), Mechanical Engineering, NTU Singapore
- Dean’s List Certificate AY2024/25 (Top 5%), Mechanical Engineering, NTU Singapore
- URECA Undergraduate Research Program 2023/2024 Certificate