Gregory Xie

Cambridge, MA ● [redacted] ● [redacted]@mit.edu

Education

Massachusetts Institute of Technology *May 2023*
- M. Eng. in Electrical Engineering and Computer Science *GPA: 5.0/5.0*
- Concentration: Artificial Intelligence

Massachusetts Institute of Technology *May 2022*
- B.S. in Electrical Engineering and Computer Science, Mechanical Engineering *GPA: 5.0/5.0*

Experience

Roboticist, The AI Institute *June 2023 - Current*

Graduate Research Assistant, MIT CSAIL *(PI: Prof. Daniela Rus)* *Sep 2022 - May 2023*
- Designed two novel robotic grippers for in-hand manipulation and grasp proprioception, resulting in publications [2, 3]

Robotics Software Engineering Intern, Realtime Robotics *June 2022 - Aug 2022*
- Designed and integrated an online robot trajectory delay estimator
- Developed planning, filtering, and simulation features for a real-time software stack in C++

Undergraduate Researcher, MIT CSAIL *(PI: Prof. Edward Adelson)* *Feb 2022 - June 2022*
- Designed a quasi-direct drive robotic wrist using a 2-DOF parallel linkage and torque-controlled BLDCs

Mechatronics Intern, Nimble Robotics *June 2021 - Aug 2021*
- Improved actuator torque accuracy and high end torque
- Characterized electrical and thermal properties of actuators using a custom-built dynamometer
- Defined requirements for next-generation motor controller

Undergraduate Researcher, MIT CSAIL *(PI: Prof. Daniela Rus)* *June 2019 - June 2021*
- Designed two generations of modular auxetic robots, resulting in publications [1, 4]

Mechanical Engineering Intern, Formlabs *June 2020 - Aug 2020*
- Designed and conducted lifetime and design verification tests for the Form Wash L and Form Cure L
- Prototyped alternate versions of subsystems to reduce product cost

Publications

[1] Chin, L., **Xie, G.**, Lipton, J., Rus, D. “Large-Expansion Bi-Layer Auxetics Create Compliant Cellular Motion” in *IEEE ICRA*. Under Review

[2] **Xie, G.**, Chin, L., Kim, B., Holladay, R., Rus, D. “Strong Compliant Grasps Using a Cable-Driven Soft Gripper” in *IEEE IROS*. 2024

[3] **Xie, G.**, Holladay, R., Chin, L., Rus, D. “In-Hand Manipulation With a Simple Belted Parallel-Jaw Gripper” in *IEEE Robotics and Automation Letters*. 2024

[4] Chin, L., Burns, M.*, **Xie, G.***, Rus, D. “Flipper-Style Locomotion through Strong Expanding Modular Robots” in *IEEE Robotics and Automation Letters*. 2023

Selected Personal Projects

3-DOF gravity-powered amusement ride *2021*
- Designed a 3 degree of freedom, 4 person “seesaw” over the course of an year for a dorm orientation event, led team to build the ride over 2 weeks

Reaction Wheel Balancing Stick *2021*
- Designed inverted pendulum plant with roll and pitch reaction wheels
- Designed and implemented linear quadratic regulator on microcontroller to stabilize plant

Skills and Tools

- Programming Languages: Python, C++, MATLAB
- Engineering Softwares: ROS (1/2), PyTorch, Pandas, Solidworks, Onshape, HSMWorks, LTSpice, KiCad
- Manufacturing: DFM/DFA, GD&T, Manual and CNC machining, 3D printing (SLA, SLS, FDM), TIG and MIG welding