

XIANYI CHENG

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Carnegie Mellon University
Pittsburgh, PA 15213, USA

EDUCATION

Carnegie Mellon University

Ph.D. in Mechanical Engineering 2019 - 2024 (expected)
Advisor: Matthew T. Mason

Carnegie Mellon University

M.S. in Robotics, School of Computer Science 2017 - 2019
Advisor: Matthew T. Mason

Harbin Institute of Technology

B.S. in Aerospace Engineering 2013 - 2017

PUBLICATIONS

- [1] **Enhancing Dexterity in Robotic Manipulation via Hierarchical Contact Exploration**
Xianyì Cheng, Sarvesh Patil, Zeynep Temel, Oliver Kroemer, Matthew T. Mason
IEEE Robotics and Automation Letter (RAL), Under Review
- [2] **Autogenerated Manipulation Primitives**
Eric Huang, Xianyì Cheng, Yuemin Mao, Arnav Gupta, Matthew T. Mason
The International Journal of Robotics Research (IJRR), 2023
- [3] **Learning Preconditions of Hybrid Force-Velocity Controllers for Contact-Rich Manipulation**
Jacky Liang, Xianyì Cheng, Oliver Kroemer
The Conference on Robot Learning (CoRL), 2022
- [4] **Extrinsic Dexterous Manipulation with a Direct-drive Hand: A Case Study**
Arnav Gupta, Yuemin Mao, Ankit Bhatia, Xianyì Cheng, Jonathan King, Yifan Hou, Matthew T. Mason
International Conference on Intelligent Robots and Systems (IROS), 2022
- [5] **Contact Mode Guided Motion Planning for Quasidynamic Dexterous Manipulation in 3D**
Xianyì Cheng, Eric Huang, Yifan Hou, Matthew T. Mason
IEEE International Conference on Robotics and Automation (ICRA), 2022
- [6] **Contact Mode Guided Sampling-Based Planning for Quasistatic Dexterous Manipulation in 2D**

Xianyi Cheng, Eric Huang, Yifan Hou, Matthew T. Mason
IEEE International Conference on Robotics and Automation (ICRA), 2021

- [7] **Efficient Contact Mode Enumeration in 3D**
Eric Huang, Xianyi Cheng, Matthew T. Mason
International Workshop on the Algorithmic Foundations of Robotics (WAFR), 2020

- [8] **Manipulation with Suction Cups using External Contacts**
Xianyi Cheng, Yifan Hou, Matthew T. Mason
International Symposium on Robotics Research (ISRR), 2019

- [9] **Data-Efficient Process Monitoring and Failure Detection for Robust Robotic Screwdriving**
Xianyi Cheng, Zhengzhong Jia, Matthew T. Mason
IEEE International Conference on Automation Science and Engineering (CASE), 2019

- [10] **Sensor Selection and Stage & Result Classifications for Automated Miniature Screwdriving**
Xianyi Cheng, Zhengzhong Jia, Ankit Bhatia, Reuben M Aronson, Matthew T. Mason
IEEE/RSJ International Conference on Intelligent Robots (IROS), 2018

HONORS & AWARDS

MIT EECS Rising Stars	2021
Selective workshop for graduate students and postdocs of historically underrepresented genders interested in pursuing academic careers in EE, CS, and AI	
Foxconn Fellowship	2018
HIT Outstanding Engineering Leadership Program	2016
Selective program for distinguished undergraduate engineering students	

INVITED TALKS

RoboGrads Seminar, Georgia Tech	2023
Intelligent Robot Lab, Brown University	2023
DAIR Lab, University of Pennsylvania	2023
The Machines in Motion Lab, New York University	2022
R-PAD Lab, CMU	2022
AIRLab, Lehigh University	2021

SERVICE

Reviewer at RAL, IROS, ICRA, MRS	
IROS Workshop on Leveraging Models for Contact-rich Manipulation, Co-organizer	2023

TEACHING

Dynamics , CMU 24-351, Undergraduate	Fall 2022
Teaching Assistant and Instructor for Weekly Recitations	
Robot Dynamics and Analysis , CMU 24-760, Graduate	Fall 2021
Teaching Assistant and Instructor for Weekly Recitations	

MENTORSHIP

Undergraduate Students: Yuemin Mao (CMU ME, now PhD Student at CMU Robotics), Karen Li (CMU CS), Leo Nicolussi (CMU ME)

Master Students: Tianxin Li (CMU ECE), Divya Aggarwal (CMU ECE), Elizabeth Amy Santoso (CMU ME), Yifu Jin (CMU ECE)

INDUSTRY EXPERIENCE

Robotics AI, Amazon, Stow Team 2022

Development of motion strategies for complex manipulation in warehouse automation inbound process

ABB Robotics Research 2020

Development of deep learning and vision algorithms for grasp planning