YIXIAO LI

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EDUCATION

Tsinghua University, Beijing *August 2018 - June 2022*
Bachelor of Engineering in Mechanical Engineering
Bachelor of Science in Statistics (minor)

- **Academic:** Major GPA:3.84/4.00, Ranking:7/96; Minor GPA: 4.00/4.00
- **Awards:**
  - 7th IEEE ARM Best Conference Paper Finalist -2022.07
  - Outstanding Graduates of Beijing -2022.06
  - Excellent Graduates of Tsinghua University -2022.06
  - Academic Excellence Scholarship of Tsinghua University -2019,2020,2021 (Top 10%)

RESEARCH EXPERIENCE

Precision Mechatronics and Control Lab, Tsinghua University
Planning and Control for Safe Robot-human Interaction *January 2022 - June 2022*
Advisor: Prof.Chuxiong Hu

- Developed a hierarchical safe planning and control framework for robot obstacle avoidance.
- Proposed an obstacle representation method based on depth vision to perceive static and dynamic obstacles in the environment.
- Proposed an automatic hyperparameter regulator for the planning and control algorithm to improve its efficiency and safety.
- Deployed the dynamic robot collision avoidance system in real-world experiments and successfully tested it with Kinova Jaco robot.

Intelligent Control Lab, Carnegie Mellon University
Hyperparameter Optimization for Safe Control Algorithm *July 2021 - September 2021*
Advisor: Prof.Changliu Liu

- Developed a coarse-fine tuning optimization framework with a significant efficiency improvement (up to 40% compared to a benchmark).
- Designed an Active Contextual Optimizer (ActiveCO) based on Artificial Curiosity and Black-box Optimization.
- Proposed sampling strategy which actively chooses contexts based on Expected Improvement, speeding up the optimization process.
- Tested the proposed method on safe control algorithms such as Safe Set Algorithm and Barrier Function Method.

Precision Mechatronics and Control Lab, Tsinghua University
Robot Learning for Manipulations *January 2021 - July 2021*
Advisor: Prof.Chuxiong Hu

- Proposed Latent Object-Centric Representations for robotic manipulation.
- Conducted real-world experiments and collected about 5,500 episodes of real-world training & validation data. Programmed for data washing and visualization.
- Conducted ablation experiments to prove the efficacy of the proposed method.
- Submitted paper *Learning Latent Object-Centric Representations for Visual-Based Robot Manipulation* as co-author.

Institute of Solid Mechanics, Tsinghua University
Undergraduate Student Researcher *September 2019 - April 2020*
Advisor: Prof.Changqin Chen

- Designed mechanical logic gates utilizing origami structures.
- Built mechanical models for bistability-based foldable origami structures.
- Designed possible structures for mechanical logic gates AND, OR, and NOT based on the proposed origami structure.

PUBLICATIONS

[1] Yunan Wang, Jiayu Wang, **Yixiao Li**, Chuxiong HU, Yu ZHU, Learning Dynamic Object-centric Representations for Robot Manipulation, IEEE International Conference on Advanced Robotics and Mechatronics, 2022

[2] Zhiqiang Meng, Weitong Chen, Tie Mei, Yuchen Lai, **Yixiao Li**, C.Q. Chen, Bistability-based foldable origami mechanical logic gates. Extreme Mechanics Letters, 2021

PROJECT EXPERIENCE

Shanghai Micro Electronics Equipment Co., Inc
Electrical Engineering Intern *June 2021 - August 2021*

- Developed programs for organizing cabling data.
- Co-developed an API for accessing cabling information from different software.

SKILLS

Programming	R, Python, C++, MATLAB(Simulink) under Linux
Robotics:	Robot Operating System (ROS), PyBullets, MuJoCo
Mechanical Design:	SolidWorks, AutoCad, Abaquas
Visualization & Editing:	R(ggplot2), LaTex