YIXIAO LI

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EDUCATION

ETH, Zurich *September 2023 - Present*
Master of Science in Robotics, Systems and Control
Awards: Excellence Scholarships(ESOP) 2023

Tsinghua University, Beijing *August 2018 - June 2022*
Bachelor of Science 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:**
  - Outstanding Graduates of Beijing
  - Excellent Graduates of Tsinghua University
  - 7th IEEE ARM Best Conference Paper Finalist
  - Academic Excellence Scholarship of Tsinghua University -2019,2020,2021 (Top 10%)

RESEARCH EXPERIENCE

Computational Robotics Lab, ETH Zurich
Deep Manipulation Memory *March 2024 - June 2024*
Advisor: [Prof. Stelian Coros](#)

- Developed Deep Manipulation Memory (DM&M), an autoregressive model for learning-based trajectory initialization in robotic manipulation.
- Achieved a raw success rate of 72.0% and 74.7% on box-picking and goal-reaching tasks, accelerating optimization-based motion planning.
- Reduced trajectory optimization time by up to 34% compared to baseline methods.

Hong Kong Centre For Logistics Robotics, The Chinese University of Hong Kong
Robust Dynamic Bin-Picking *June 2023 - November 2023*
Advisor: [Prof.Yun-Hui Liu](#)

- Proposed a framework for logistic bin-picking capable of picking objects from a moving bin.
- Developed motion planning and control algorithms based MPPI and reactive control.
- Co-authored the paper *DBPF: A Framework for Efficient and Robust Dynamic Bin-Picking* (under review RAL).

Precision Mechatronics and Control Lab, Tsinghua University
Planning and Control for Safe Robot-human Interaction *January 2021 - July 2021*
Advisor: [Prof.Chuxiong Hu](#)

- Developed a hierarchical safe planning and control framework for robot obstacle avoidance.
- Proposed an automatic hyperparameter regulator to improve efficiency and safety.
- Deployed the dynamic robot collision avoidance system in real-world experiments and 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](#)

- Designed an Active Contextual Optimizer (ActiveCO) based on Artificial Curiosity and Bayesian Optimization.
- Tested the proposed method on safe control algorithms such as Safe Set Algorithm and Barrier with significant efficiency improvement. (up to 40% compared to a benchmark). 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.
- Co-authored the paper *Learning Latent Object-Centric Representations for Visual-Based Robot Manipulation.*

PUBLICATIONS

[1] Yichuan Li,Junkai Zhao, **Yixiao** Li,Zheng Wu, Rui Cao,Masayoshi Tomizuka, Yun-Hui Liu,DBPF: A Framework for Efficient and Robust Dynamic Bin-Picking,IEEE Robotics and Automation Letters, 2024

[2] 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

INDUSTRY EXPERIENCE

Flink Robotics

Software Engineering Intern *September 2024 - December 2024*

- Developed and optimized software for robot trajectory planning in logistics applications.
- Led the development of the Deep Manipulation Memory framework, integrating neural networks to initialize trajectories, improving optimization robustness and speed.
- Enhanced motion planning efficiency by accelerating convergence and reducing computational overhead.

Hong Kong Centre For Logistics Robotics

Assistant Engineer *September 2022 - August 2023*

- Developed algorithms for robot manipulation skills such as pushing and bin-picking.
- Designed prototypes of hardware and algorithms for a pill identification system.

Shanghai Micro Electronics Equipment Co., Inc

Electrical Engineering Intern *June 2021 - August 2021*

- Developed a software for organizing cabling data stored in different engineering softwares.
- Developed a programming interface for transferring cabling information from different software.