Chongkai Gao

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Current Position

A PhD student at the National University of Singapore. A robotics and AI researcher

Education

National University of Singapore, Singapore 01/2024 – present

PhD in School of Computing, Advisior: Prof. Lin Shao

Tsinghua University, Beijing, China 08/2020 – 06/2023

Master in Department of Automation, Advisior: Prof. Feng Chen, GPA 3.74/4.0, Rank 39/161

Tsinghua University, Beijing, China 08/2016 – 07/2020

B.Eng. in Department of Automation, GPA 3.62/4.0, Rank 38/158

Internship

Tsinghua Embodied AI Lab (TEA Lab) Tsinghua University

Research Assistant (Supervisor: Prof. Huazhe Xu) 06/2023 – 01/2024

Equivariant Robot Learning for Manipulation Tasks

Mech-Mind Robotics Beijing, China

Robot Algorithm Intern 03/2023 – 06/2023

Kinematic Parameter Identification for Serial Robot, Online 3D Bin Packing

Robot Perception and Learning Lab University of Texas at Austin

Remote Research Intern (Supervisor: Prof. Yuke Zhu) 05/2022 – 02/2023

Robot Learning, Lifelong Robot Learning Benchmark

Interaction Lab University of Southern California

Visiting Scholar (Supervisor: Prof. Maja Mataric) 06/2019 – 08/2019

Non-Verbal Communication Game for Cerebral Palsy

Selected Honors

- President's Graduate Fellowship, National University of Singapore 2024
- Excellent Intern, Mech-mind Robotics 2023
- Excellent Graduates, Tsinghua University 2020
- Philobiblion Scholarship, Tsinghua University 2019
- Scientific and Technological Innovation Award, Tsinghua University 2019
- Third Place Award, Southern California Software Pioneer Hackathon 2019
- Best Team Culture Award, International Aerial Robotics Competition (Asia-Pacific Venue) 2019

Teaching Experience

- Teaching Assistant, CS4278/CS5278 Intelligent Robots: Algorithms and Systems, NUS 2024 Fall
- Teaching Assistant, Matrix Analysis and Application, Tsinghua University 2021 Spring & 2022 Fall

Skills

Python, C++, ROS, LaTeX, PyTorch, Mujoco, Git

PUBLICATIONS

1. **Chongkai Gao**, Haozhuo Zhang, Zhixuan Xu, Zhehao Cai, Lin Shao, "**FLIP: Flow-Centric Generative Planning for General-Purpose Manipulation Tasks**", *in ICLR 2025*, [paper][website]
2. Chenrui Tie*, Yue Chen*, Ruihai Wu, Boxuan Dong, Zeyi Li, **Chongkai Gao**†, Hao Dong†, "**ET-SEED: Efficient Trajectory-Level SE(3) Equivariant Diffusion Policy**", *in ICLR 2025*, [paper][website]
3. Zhixuan Xu*, **Chongkai Gao***, Zixuan Liu*, Gang Yang*, Chenrui Tie, Haozhuo Zheng, Haoyu Zhou, Weikun Peng, Debang Wang, Tianyi Chen, Zhouliang Yu, Lin Shao, "**ManiFoundation Model for General-Purpose Robotic Manipulation of Contact Synthesis with Arbitrary Objects and Robots**", *in IROS, 2024*, Oral Presentation, [paper][website]
4. **Chongkai Gao**, Zhengrong Xue, Shuying Deng, Tianhai Liang, Siqi Yang, Lin Shao, Huazhe Xu, "**RiEMann: Near Real-Time SE(3)-Equivariant Robot Manipulation without Point Cloud Segmentation**", *in CoRL 2024*, [paper][website]
5. Bo Liu*, Yifeng Zhu*, **Chongkai Gao***, Yihao Feng, Qiang Liu, Peter Stone, Yuke Zhu, "**LIBERO: Benchmarking Knowledge Transfer in Lifelong Robot Learning**", *NeurIPS Track Datasets and Benchmarks 2023*, [paper][website]
6. **Chongkai Gao**, Zekun Li, Haichuan Gao, Feng Chen, "**Iterative Interactive Modeling for Knotting Plastic Bags**", *in CoRL 2022*, Best Systems Paper Nomination, [paper][website]
7. **Chongkai Gao**, Yizhou Jiang, Feng Chen, "**Transfering Hierarchical Structure with Dual Meta Imitation Learning**", *in CoRL 2022*, [paper]
8. **Chongkai Gao**, Haichuan Gao, Shangqi Guo, Tianren Zhang, Feng Chen, "**CRIL: Continual Robot Imitation Learning via Generative and Prediction Model**", *in IROS, 2021*, [paper]
9. Zhenyu Wei*, Zhixuan Xu*, Jingxiang Guo, Yiwen Hou, **Chongkai Gao**, Zhehao Cai, Jiayu Luo, Lin Shao, "$\mathcal{D}(\mathcal{R},\mathcal{O})$**-Grasp: A Unified Representation of Robot and Object Interaction for Cross-Embodiment Dexterous Grasping**", *in ICRA 2025*, [paper][website]
10. Tianren zhang, Yizhou Jiang, Xin Su, Shangqi Guo, **Chongkai Gao**, Feng Chen, "**Subjective Learning for Conflicting Data**", *in ICLR Workshop on Agent Learning in Open-Endedness, 2022*, [paper]