CHONGKAI GAO

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EDUCATION

National University of Singapore, Singapore — 01/2024 – present
PhD in School of Computing, Advisor: 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

- Best Paper Award, ICRA 2025 Human-Centric Multilateral Teleoperation Workshop.
- Best Paper Award on Robot Manipulation and Locomotion, ICRA 2025.
- Best Robotics Paper Award, CoRL 2024 Workshop on MAPoDeL. — 2024
- Best System Paper Nomination, CoRL 2022. — 2022
- 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, Advanced Topics in Robotics, NUS. Lecturer: Prof. David Hsu. — 2025 Spring
- Teaching Assistant, Intelligent Robots: Algorithms and Systems, NUS. Lecturer: Prof. Lin Shao. — 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**, Zixuan Liu, Zhenghao Chi, Junshan Huang, Xin Fei, Yiwen Hou, Yuxuan Zhang, Yudi Lin, Zhirui Fang, Zeyu Jiang, Lin Shao, "**VLA-OS: Structuring and Dissecting Planning Representations and Paradigms in Vision-Language-Action Models** ", *in NeurIPS 2025*, [paper][website]

2. **Chongkai Gao**, Haozhuo Zhang, Zhixuan Xu, Zhehao Cai, Lin Shao, "**FLIP: Flow-Centric Generative Planning for General-Purpose Manipulation Tasks**", *in ICLR 2025*, Oral Presentation in CoRL 2024 LEAP Workshop, [paper][website]

3. 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]

4. 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]

5. **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]

6. 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]

7. **Chongkai Gao**, Zekun Li, Haichuan Gao, Feng Chen, "**Iterative Interactive Modeling for Knotting Plastic Bags**", *in CoRL 2022*, Best Systems Paper Nomination, [paper][website]

8. **Chongkai Gao**, Yizhou Jiang, Feng Chen, "**Transfering Hierarchical Structure with Dual Meta Imitation Learning**", *in CoRL 2022*, [paper]

9. **Chongkai Gao**, Haichuan Gao, Shangqi Guo, Tianren Zhang, Feng Chen, "**CRIL: Continual Robot Imitation Learning via Generative and Prediction Model**", *in IROS, 2021*, [paper]

10. 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*, Best Paper Award on Robot Manipulation and Locomotio, Best Robotics Paper in CoRL 2024 MAPoDeL Workshop, [paper][website]

11. Lixin Xu*, Zixuan Liu*, Zhewei Gui, Jingxiang Guo, Zeyu Jiang, Zhixuan Xu, **Chongkai Gao**, Lin Shao, "**DexSinGrasp: Learning a Unified Policy for Dexterous Object Singulation and Grasping in Cluttered Environments**", *in Arxiv 2025*, [paper][website]

12. Haonan Chen*, Junxiao Li*, Ruihai Wu, Yiwei Liu, Yiwen Hou, Zhixuan Xu, Jingxiang Guo, **Chongkai Gao**, Zhenyu Wei, Shensi Xu, Jiaqi Huang, Lin Shao, "**MetaFold: Language-Guided Multi-Category Garment Folding Framework via Trajectory Generation and Foundation Model**", *in IROS 2025*, [paper][website]

13. Jingxiang Guo*, Jiayu Luo*, Zhenyu Wei*, Yiwen Hou, Zhixuan Xu, Xiaoyi Lin, **Chongkai Gao**, Lin Shao, "**TelePreview: A User-Friendly Teleoperation System with Virtual Arm Assistance for Enhanced Effectiveness**", *in Arxiv 2025*, Best Paper Award on ICRA 2025 Human-Centric Multilateral Teleoperation Workshop, [paper][website]