Yifei Dong

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Education

2025	**Duke University**, *Visiting Scholar*, Robot Dexterity Lab, with Dr. Xianyi Cheng
2023 - Now	**KTH Royal Institute of Technology**, *PhD Candidate*, Robotics, Computer Science
2019 - 2022	**ETH Zurich**, *M.Sc.*, Mechanical Engineering
2015 - 2019	**Shanghai Jiao Tong University**, *B.Sc.*, Mechanical Engineering Tsien Hsue-shen Program & Zhiyuan Honors Program of Engineering

Employment

2023 - Now — Robotics, Perception and Learning, KTH, *Stockholm*
Doctoral Student, with Assoc. Prof. Florian Pokorny
Planning and co-design for robust manipulation.

2022 — Idiap, EPFL, *Martigny*, *Research Assistant*, with Dr. Sylvain Calinon
Phase estimation on Riemannian manifold. Code contribution: Robotics Code From Scratch

2022 — F&P Robotics, *Zürich*, *Software Engineer Intern*
Motion planning of door opening and human-robot interaction for a mobile service robot.

2018 — NIO Inc., *Shanghai*, *Software Engineer Intern*
LiDAR simulation of an autonomous vehicle in various traffic scenes.

Publications

Journals and Conference Proceedings:

[J1] Yifei Dong, Xianyi Cheng, Florian T. Pokorny, *Characterizing Manipulation Robustness through Energy Margin and Caging Analysis*, Robotics and Automation Letters (RA-L), 2024, presented at ICRA 2025, *Paper* | *Workshop*

[C1] Yifei Dong, Florian T. Pokorny, *Quasi-static Soft Fixture Analysis of Rigid and Deformable Objects*, International Conference on Robotics and Automation (ICRA), 2024, *Paper* | *Website* | *Workshop*

Preprints (*equal contribution):

[1] David Blanco-Mulero, Yifei Dong, Julia Borras, Florian T. Pokorny and Carme Torras, *T-DOM: A Taxonomy for Robotic Manipulation of Deformable Objects*, under review, *Preprint* | *Website*

[2] Yifei Dong*, Shaohang Han*, Xianyi Cheng, Werner Friedl, Rafael I. Cabral Muchacho, Máximo A. Roa, Jana Tumova, and Florian T. Pokorny, *CageCoOpt: Enhancing Manipulation Robustness through Caging-Guided Morphology and Policy Co-Optimization* , under review, *Preprint* | *Website*

[3] Haofei Lu, Yifei Dong, Zehang Weng, Jens Lundell, Danica Kragic, *Grasping a Handful: Sequential Multi-Object Dexterous Grasp Generation*, under review, *Preprint*

[4] David Cáceres Domínguez et al., *The First WARA Robotics Mobile Manipulation Challenge–Lessons Learned*, under review, *Preprint* | *Video*

[5] Yifei Dong*, Yan Zhang*, Sylvain Calinon, Florian T. Pokorny, *Robustness-Aware Tool Selection and Manipulation Planning with Learned Energy-Informed Guidance*, under review, *Preprint*

[6] Kei Ikemura, Yifei Dong, David Blanco-Mulero, Alberta Longhini, Li Chen, Florian T. Pokorny, *Efficient End-effector Co-Design by Demonstration for Deformable Fragile Object Manipulation*, RSS Workshop on Robot Hardware-Aware Intelligence, 2025, *OpenReview*

[7] Yue Chen et al., *WarriorMath: Empowering Mathematical Reasoning for Large Language Models via Expert Battles*, under review, *Preprint*

Academic Activities

Talks and Paper Review:

2025   Oral presentation at ICRA 2025, Atlanta, USA

2025   Guest lecture at Duke University's graduate course, Robotic Manipulation, 2025 Spring

2024   Invited talk at Prof. Joel Burdick's group, California Institute of Technology

2024   Oral presentation at ICRA 2024, Yokohama, Japan

2024   Reviewer for RA-L, IROS, ISRR

Supervision and Teaching:

2025   Supervising master thesis, "Co-design for deformable object manipulation", Kei Ikemura, Li Chen

2025   Supervising semester project, "Deformable object manipulation planning through taxonomy-based abstractions and foundation models", Gawtam Chithra Ramesh

2024, 2025   Teaching assistant in Introduction to Robotics, DD2410, KTH

Experiences

2024   **Mobile Manipulation Challenge, ABB**, *Västerås, Sweden*
Team member of KTH: Custom gripper co-design for multi-task manipulation | Slides

2021   **Robotic Systems Lab, ETH**, *Zürich*, *Graduate Researcher*, with Prof. Marco Hutter
Master thesis: Mobile door state estimation and parameter identification | Thesis
Semester thesis: Contact-implicit MPC for mobile manipulation | Video | Thesis

2020   **Computer Vision and Geometry Lab & Microsoft**, *Zürich*
Course project: Object mesh reconstruction using RGB-D cameras. | Thesis | Git | Video

2019   **SAIC Motor**, *Shanghai*
Bachelor thesis: Strategy optimization of autonomous emergency braking

2018   **Institute of Design and Control Engineering, SJTU**, *Shanghai*
3-DOF plum processing system for surface-curving and core-deprivation. | Video

2017   **FSAE Racing Team, SJTU**, *Shanghai*, *Undergraduate Mechanical Engineer*

2017   **Institute of Intelligent Vehicle, SJTU**, *Shanghai*
Structural design and locomotion formulation of a snake robot. | Video

Awards & Grants

2024   Travel Grant from the Karl Engvers Foundation

2023   European Commission Project (SoftEnable) Grant

2021, 2022   ETH Scholarship for International Students

2019   Excellence Award, BAIC Automobile Invitational Tournament

2018   Tan Kah Kee Invention Award

2016, 2018   General Motors Scholarship

2017   Huawei Scholarship

2016, 2017   Zhiyuan College Honors Scholarship

Skills

Programming   Python, C++, MATLAB, C, C#

Tools   ROS, Gazebo, Pybullet, Isaac Gym, Git, Docker, Blender, LaTex, PyTorch, Simulink, Unity3D, ANSYS, SolidWorks, CATIA, NX Unigraphics

Language   English (TOEFL 109/120), Chinese (native), German (Goethe B1)