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# Yifei Dong

## 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\*, 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*, IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2025, [Preprint](#) | [Website](#)
- [C2] 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] Yifei Dong\*, Yan Zhang\*, Sylvain Calinon, Florian T. Pokorny, *Robustness-Aware Tool Selection and Manipulation Planning with Learned Energy-Informed Guidance*, under review, [Preprint](#)
- [2] David Blanco-Mulero, Yifei Dong, Julia Borrás, Florian T. Pokorny and Carme Torras, *T-DOM: A Taxonomy for Robotic Manipulation of Deformable Objects*, 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] 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](#)
- [5] David Cáceres Domínguez et al., *The First WARA Robotics Mobile Manipulation Challenge-Lessons Learned*, under review, [Preprint](#) | [Video](#)
- [6] Yue Chen et al., *WarriorMath: Empowering Mathematical Reasoning for Large Language Models via Expert Battles*, under review, [Preprint](#)

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## 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

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## 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](#)

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## 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

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## 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)