

YUHONG DENG

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yuhongdeng.com $\diamond$ [Google Scholar](#)

RESEARCH INTERESTS

My research spans robot perception, learning, and planning, with the goal of building robots that generalize across diverse household manipulation tasks.

EDUCATION

National University of Singapore

Aug. 2023 – Aug. 2027 (expected)

Ph.D. in Computer Science, advised by [Prof. David Hsu](#)

Tsinghua University

Sep. 2020 – Sep. 2023

M.Eng. in Electronic Information (Artificial Intelligence Track)

Thesis: Learning dexterous manipulation of deformable objects (Outstanding Master's Thesis)

Tsinghua University

Aug. 2016 – Jun. 2020

B.Eng. in Mechanical Engineering

Thesis: Cable identification system based on feature matching (Outstanding Bachelor's Thesis Candidate)

RESEARCH EXPERIENCE

Learning and Intelligent Systems Group, MIT CSAIL

Aug. 2026 – Present

Visiting Ph.D. Student with [Prof. Leslie Kaelbling](#) and [Prof. Tomás Lozano-Pérez](#)

Adaptive Computing Lab & Smart Systems Institute, NUS

Aug. 2023 – Present

Graduate Research Assistant with [Prof. David Hsu](#)

- Developed CLASP, a general-purpose clothes manipulation method integrating semantic keypoints and foundation models. Published at *ICRA* 2025 and in *IJRR* 2026.

Shenzhen International Graduate School, Tsinghua University

Sep. 2020 – Sep. 2023

Graduate Research Assistant with [Prof. Xueqian Wang](#)

- Proposed a unified Transformer-based model architecture for learning language-conditioned deformable object manipulation policies. Published at *ICRA* 2024.
- Presented a dynamic graph representation with self- and cross-attention to facilitate sim-to-real policy learning for deformable object rearrangement. Published at *IROS* 2022.

Department of Computer Science, Tsinghua University

Sep. 2017 – May. 2021

Undergraduate Research Student with [Prof. Huaping Liu](#)

- Developed a robot assistant capable of answering human questions by performing manipulation actions to perceive the environment actively. Published at *RSS* 2021.
- Developed a robotic system combining a reinforcement learning algorithm and a novel robotic hand, enabling efficient pushing and picking for grasping in cluttered scenes. Published at *IROS* 2019.

SELECTED PUBLICATIONS

See [Google Scholar](#) for all papers.

- [1] **Y. Deng**, Y. Liu, and D. Hsu. GROW²: Grounding Which and Where for Robot Tool Use. In *Conference on Robot Learning (CoRL)*, 2026. [\[Paper\]](#) [\[Website\]](#)
- [2] C. Tang, A. Xiao, **Y. Deng**, T. Hu, W. Dong, H. Zhang, D. Hsu, and H. Zhang. MimicFunc: Imitating Tool Manipulation from a Single Human Video via Functional Correspondence. In *Conference on Robot Learning (CoRL)*, 2025. [\[Paper\]](#) [\[Website\]](#) [\[Code\]](#)

- [3] **Y. Deng**, C. Tang, C. Yu, L. Li, and D. Hsu. CLASP: General-Purpose Clothes Manipulation with Semantic Keypoints. Published in *International Journal of Robotics Research (IJRR)*, 2026; conference version appeared at *IEEE International Conference on Robotics and Automation (ICRA)*, 2025. [\[Journal Paper\]](#) [\[Conference Paper\]](#) [\[Website\]](#) [\[Code\]](#)
- [4] **Y. Deng**, K. Mo, C. Xia, and X. Wang. Learning Language-Conditioned Deformable Object Manipulation with Graph Dynamics. In *IEEE International Conference on Robotics and Automation (ICRA)*, 2024. [\[Paper\]](#) [\[Website\]](#) [\[Code\]](#)
- [5] K. Mo, C. Xia, X. Wang, **Y. Deng**, X. Gao, and B. Liang. Foldsformer: Learning Sequential Multi-Step Cloth Manipulation With Space-Time Attention. Published in *IEEE Robotics and Automation Letters (RA-L)*, 2022. [\[Paper\]](#) [\[Website\]](#) [\[Code\]](#)
- [6] **Y. Deng**, C. Xia, X. Wang, and L. Chen. Deep Reinforcement Learning Based on Local GNN for Goal-conditioned Deformable Object Rearranging. In *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2022. [\[Paper\]](#) [\[Website\]](#)
- [7] **Y. Deng**, D. Guo, X. Guo, N. Zhang, H. Liu, and F. Sun. MQA: Answering the Question via Robotic Manipulation. In *Robotics: Science and Systems (RSS)*, 2021. [\[Paper\]](#) [\[Website\]](#) [\[Code & Dataset\]](#)
- [8] **Y. Deng**, X. Guo, Y. Wei, K. Lu, B. Fang, D. Guo, H. Liu, and F. Sun. Deep Reinforcement Learning for Robotic Pushing and Picking in Cluttered Environment. In *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2019. [\[Paper\]](#) [\[Website\]](#) [\[Code\]](#)

SERVICE

Journal Reviewer: IEEE Robotics and Automation Letters (RA-L), Journal of Field Robotics (JFR).

Conference Reviewer: RSS, ICRA, IROS, CoRL.

Member, IEEE.

AWARDS

Research Scholarship – National University of Singapore	Aug. 2023
Outstanding Graduate – Top 2%, Tsinghua University	Aug. 2023
Outstanding Master’s Thesis – Top 5%, Tsinghua University	Aug. 2023
Comprehensive Excellence Scholarship – Top 5%, Tsinghua University	Oct. 2022
Academic Rising Star Nominee – Top 0.5%, Tsinghua University	Apr. 2021
First Prize, 37th Challenge Cup – Top 1%, Tsinghua University	Oct. 2019
Academic Performance Scholarship, Tsinghua University	2019
Technology Innovation Scholarship, Tsinghua University	2019
First Prize, 20th National Robot and Artificial Intelligence Competition	2018

SKILLS

Programming Languages: Python, C++, MATLAB.

Software and Tools: Mechanical design (SolidWorks, AutoCAD); Robot simulation (PyBullet, MuJoCo, CoppeliaSim, Isaac Sim); ROS, Git, LaTeX.

Hardware: Microcontrollers (STM32, Arduino); Robot platforms (UR, ABB, Franka, Kinova, and Fetch).