Dayou Li

edisiondyli.github.io | lidayou.endeavour@gmail.com | +86.156-0531-0353

Education

School of Control Science and Engineering, Shandong University *Jinan, China*

M.Eng. in Control Engineering *Sept. 2022 - Present*

Supervisor: Prof. Wei Zhang

GPA: 87/100

School of Engineering, Northeast Agricultural University *Harbin, China*

B.Eng. in Mechanical Engineering *Sept. 2018 - Jun. 2022*

GPA: 88/100

Ranking: 1/18 (Agricultural Mechanization and Automation Experimental Class)

Publications

[1] **D Li**, C Zhao, S Yang, et al. "MPGNet: Learning Move-Push-Grasping Synergy for Target-Oriented Grasping in Occluded Scenes", IEEE/RSJ International Conference on Intelligent Robots and Systems **(IROS)**, Abu Dhabi, UAE, 2024. [paper] [video]

[2] P Wei, S Cheng, **D Li**, et al. "Coarse-to-Fine Detection of Multiple Seams for Robotic Welding", IEEE/RSJ International Conference on Intelligent Robots and Systems **(IROS)**, Abu Dhabi, UAE, 2024. [paper] [video]

[3] **D Li**, C Zhao, S Yang, et al. "Learning Instruction-Guided Manipulation Affordance via Large Models for Embodied Robotic Tasks", IEEE International Conference on Advanced Robotics and Mechatronics **(ICARM)**, Tokyo, Japan, 2024. [paper] [video]

[4] **D Li**, P Wei, C Zhao, et al. "A Mobile Manipulation System for Automated Replenishment in the Field of Unmanned Retail," IEEE International Conference on Mechatronics and Automation **(ICMA Best Paper Finalist)**, Harbin, China, 2023. [paper][video]

[5] S Yang, **D Li**, C Zhao, et al. "Multi-class 4-DoF Carton Box Detection for Heterogeneous Robotic Container Unloading," IEEE International Conference on Real-time Computing and Robotics **(RCAR Best Paper Finalist)**, Datong, China, 2023. [paper][video]

[6] C Zhao, S Yang, **D Li**, et al. "DynamicDiffusion: Scaling Instruction-Guided Object Rearrangement via Large Models," IEEE/ASME Transactions on Mechatronics **(TMECH)**, in submission, 2024.

Projects

3D Bin Packing and Unpacking in Logistics Industry *Aug. 2022 - Apr. 2023* [Demo]

- Developed and implemented algorithms for robotic depalletizing and offline palletizing, and validated them in both simulation and real-world environments.
- Solved the problem of rotational container detection with a small number of real samples by building a simulation data set.
- Successfully deployed the technology in BlueSword Co., Ltd's pilot plant, achieving positive results.

Language-Guided Mobile Robotic Manipulation *Nov. 2023 - Mar. 2024* [PDF][Demo]

- We developed a visual scene representation using large visual-language models to generate feature representations that align map information with natural language queries, enabling the identification of the most relevant destinations based on instructions.

- Our system integrates large language models to parse language instructions into actionable sequences for robotic navigation, facilitating goal-directed tasks by querying the scene representation.
- We implemented our approach on a composite mobile robot from RealMan Intelligent Technology Co., Ltd, enhancing its capabilities with an added lifting function.

Service

Conference Reviewer:

- IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)
- IEEE International Conference on Advanced Robotics and Mechatronics (ICARM)
- IEEE International Conference on Robotics and Automation (ICRA)
- IEEE International Conference on Mechatronics and Automation (ICMA)

Journal Reviewer:

- IEEE Transactions on Automation Science and Engineering (T-ASE)

Contests & Honors

- Merit Student Scholarship, Northeast Agricultural University (3 times), 2019-2022
- Second Prize, National Undergraduate Mathematical Contest in Modeling (China), 2021
- Second Prize, National Mathematics Competition (China), 2021
- IEEE RCAR Best Conference Paper Award (Finalist), 2023
- IEEE ICMA Best Conference Paper Award (Finalist), 2023
- Academic Scholarship, Shandong University (2 times), 2022-2024
- Bronze Award, China International College Student Innovation Competition (SDU), 2024

Skills

Language	Chinese (native), TOEFL-iBT: 104 (R:28, L:29, S:23, W:24)
Coding	Python (PyTorch, OpenCV, Open3d, etc), C++
Software	SolidWorks, CoppeliaSim, Isaac Sim