Dayou Li

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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 Honors 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 cargo box detection with a small number of real samples by building a synthetic data set.
- Six week's fieldwork in BlueSword Co., Ltd's pilot workshop, achieving positive results.

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

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

- Integrated large language models for parsing language instructions into actionable sequences for robotic navigation, facilitating goal-directed tasks by querying the scene representation.
- Implemented our approach on a composite mobile robot, enhancing it with a 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 (2 times), 2020-2022
- 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