

# Dayou Li

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## EDUCATION

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**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

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- [1] **Dayou Li**, Chenkun Zhao, Shuo Yang, Ran Song, Xiaolei Li, Wei Zhang, “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] Pengkun Wei, Shuo Cheng, **Dayou Li**, Ran Song, Yipeng Zhang, Wei Zhang, “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] **Dayou Li**, Chenkun Zhao, Shuo Yang, Lin Ma, Yibin Li, Wei Zhang, “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] **Dayou Li**, Pengkun Wei, Chenkun Zhao, Shuo Yang, Yibin Li, Wei Zhang, “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] Shuo Yang, **Dayou Li**, Chenkun Zhao, Pengkun Wei, Yibin Li, Wei Zhang, “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] Chenkun Zhao, Shuo Yang, **Dayou Li**, Ran Song, Xiaolei Li, Pengkun Wei, Wei Zhang, “DynamicDiffusion: Scaling Instruction-Guided Object Rearrangement via Large Models,” IEEE/ASME Transactions on Mechatronics (**TMECH**), in submission, 2024.

## PROJECTS

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**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

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### 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 AND HONORS

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- Merit Student Scholarship, Northeast Agricultural University (2 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

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**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