

Lijingze “Jimmy” Xiao

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Education

Northeastern University [GPA 3.4469/5], Shenyang, China

Sep. 2020 – Jun. 2024

School of Mechanical Engineering and Automation

B.Eng. in Intelligent Manufacturing Engineering

South China University of Technology [Weighted Average 80.8/100], Guangzhou, China

Sep. 2024 – Jun. 2027

School of Automation Science and Engineering

M.Eng. in Control Science and Engineering

Publications and Competition

- **GAPG: Geometry Aware Push-Grasping Synergy for Goal-Oriented Manipulation in Clutter**, Lijingze Xiao*, Jinhong Du*, Yang Cong, Supeng Diao, Yu Ren, **IEEE ICRA 2026, Accepted**. [\[arXiv\]](#) [\[GitHub\]](#);
- **SuperGrasp: Single-View Object Grasping via Superquadric Similarity Matching, Evaluation, and Refinement**, Lijingze Xiao*, Jinhong Du*, Supeng Diao, Yu Ren, Yang Cong, **IEEE RA-L, Accepted**. [\[arXiv\]](#);
- **PushPoint: Point-Conditioned Action Learning for Graspability-Aware Bin Rearrangement**, Lijingze Xiao*, Jinhong Du*, Yu Ren, Yang Cong, Under review.
- **First Place**, Simulation Sorting and Grasping Track, **IEEE ICRA 2025 Simulation Sorting Challenge** [\[Web-site\]](#); Contributed to the design of the overall workflow framework and the development of selected functional modules.
- **Meritorious Winner (M Award)**, 2023 Mathematical Contest in Modeling (**Team Leader**); led mathematical modeling, algorithm design, and paper writing.

Project Experience

Push-Grasping for Target Object Retrieval in Clutter

2025.04 – 2025.09

Push-Grasping / 3DV / ROKAE

- Built a UR5 manipulation workspace in PyBullet for push-grasp data collection, model training, and Sim2Real deployment;
- Developed a two-stage PointNet++ framework using grasp outcomes as supervision for pushing, explicitly embedding push actions into scene point clouds to predict their effects on subsequent grasps;
- Achieved over 95% task completion and 90% grasp success rates in real-world experiments, with significantly higher grasp efficiency than the Baseline;
- Open-sourced the code and model weights on [GitHub](#).

Single-View Object Grasping

2025.10 – 2026.02

Single-View Grasp / Superquadric / ROKAE

- Designed a robotic gripper in SolidWorks and collected 100k labeled grasp samples in PyBullet;
- Developed a two-stage framework with a “superquadric fitting + similarity matching” strategy to address grasp candidate sampling under single-view observations;
- Designed an anchor-guided grasp evaluation and refinement network (E-RNet), improving grasp evaluation robustness and scene adaptability under incomplete geometry;
- Deployed the model via Sim2Real transfer, achieving over 90% grasp success and 95% table-clearing rates in 100+ real-world trials.

Highly Autonomous Picking for Massive-SKU Warehousing

2026.04–Present

Bin Picking / SAC / UR5e

- Addressed severe occlusion, grasp collisions, and wall-adjacent objects in dense bins by developing SuperGrasp++

upon SuperGrasp, jointly predicting gripper-width corrections and collision risks to generate reliable grasp poses.

- Proposed the **PushPoint** framework to model spatial relations among target objects, neighboring objects, and bin walls; designed state representations, a hybrid discrete–continuous action space, and grasp-score rewards, and trained non-prehensile manipulation policies with SAC to rearrange targets into graspable configurations.
- Deployed both grasping and non-prehensile policies to UR5e via Zero-shot Sim2Real transfer; in dense industrial bin-picking scenarios with 50+ unseen objects, SuperGrasp++ alone achieved a Bin Clear success rate of **>80%**, which increased to **>95%** with the PushPoint policy.

Skills and Additional Information

- **Research Interests:** Robotic Grasping and Non-Prehensile Manipulation, Vision-Tactile Fusion for Manipulation, Robot Reinforcement Learning, 3D Perception, and Pose Estimation;
- **Core Competencies:** Capable of independently analyzing, breaking down, and solving complex problems, as well as completing simulation environment development, simulated data collection, network architecture design, model training, real-robot deployment, and academic paper writing;
- **Technical Skills:** Python, PyTorch, NumPy, C++, ROS1, Unity, PyBullet, MuJoCo, and SolidWorks;
- **Reviewer:** IROS. • **Language:** CET-6: 521 • **Hobbies:** Reading, basketball, swimming, and hiking