Haixin Jin

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Education

University of California, San Diego *Sept 2024 – Present*
MS in Electrical and Computer Engineering

- Cumulative GPA: 3.75/4.0

University of Toronto *July 2022 – Oct 2022*
Overseas Short-term Study Program

Jiangsu University *Sept 2020 – June 2024*
BE in Automation

- Cumulative GPA: 3.60/5.0 (86/100)
- Academic Honors: Third-class Scholarship and Merit Student Award (2020-2021, 2021-2022, 2022-2023)

Publication

Haixin Jin, Nikhil Shinde, Soofiyan Atar, Hongzhan Yu, Dylan Hirsch, Sicun Gao, Michael C. Yip, Sylvia Herbert, *"Learning to Nudge: A Scalable Barrier Function Framework for Safe Robot Interaction in Dense Clutter"*. Submitted to *IEEE International Conference on Robotics and Automation (ICRA) 2026.*

Research Experience

Dense Contact Barrier Functions for Safe Robot Interaction *San Diego, CA*
Research Assistant, supervised by Prof. Micheal Yip & Prof. Sylvia Herbert & Prof. Sicun Gao, UCSD *May 2025 – Sept 2025*

- Developed a novel Dense Contact Barrier Function (DCBF) framework enabling robots to safely interact with and navigate densely cluttered environments.
- Designed and implemented an object-centric neural barrier model that implicitly encodes inter-object contact dynamics through history-conditioned representations, supporting scalable and generalizable safety reasoning.
- Validated the framework across environments with up to 40 objects, demonstrating strong transfer and robustness in dense multi-object scenarios despite training solely on 4-object settings.

Imitation Learning for Robotic Manipulation with Franka Arm *San Diego, CA*
Research Assistant, supervised by Prof. Micheal Yip, UCSD *Feb 2025 - May 2025*

- Designed and implemented a custom teleoperation interface using mouse input and a PyBullet-based simulation environment for the Franka Emika Panda arm.
- Collected the PushT dataset to train diffusion policies within the LeRobot framework and developed custom evaluation scripts for testing policy performance in the self-built environment.
- Builed a mobile-device teleoperation pipeline enabling real-time robot manipulation experiments in simulation.

Design of Orchard Obstacle Avoidance Control System Based on Lidar *Jiangsu, China*
Research Assistant, supervised by Prof. Yue Shen, JSU *Nov 2023 – May 2024*

- Developed a multi-sensor navigation system for autonomous navigation in orchard environments.
- Utilized the Navigation2 package and performed extensive simulation experiments in RViz and Gazebo, then validated obstacle avoidance performance in real word.

A Fruit Picking and Sorting Machine *Jiangsu, China*
Research Assistant, supervised by Prof. Zhaowei Wang & Prof. Yue Shen, JSU *Sept 2022 – May 2023*

- Developed a multi-sensor, multi–closed-loop distributed control system integrating three control circuit boards, three power boards, and two motor driver boards in coordinated operation.
- Built the full mechanical structure, tested microcontroller peripherals and actuators, utilized a combination of serial and parallel non-linear PID controller.