Angchen Xie

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EDUCATION

Carnegie Mellon University (CMU) **Pittsburgh, PA**
M.S. in Robotics *Aug. 2025 - Present*

Shanghai Jiao Tong University (SJTU) **Shanghai, CHN**
B.E. in Automation *Sept. 2021 - June 2025*
- Major GPA: 4.01/4.3
- Rank: 1/87
- Centesimal grade average: 92.45/100

PUBLICATIONS

- **Non-repetitive: A Promising LiDAR Scanning Pattern**
  Angchen Xie, Yeqiang Qian, Weihao Yan, Chunxiang Wang, Ming Yang
  IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2024.
- **Not All Collisions are Bad: Adapting to User Contact Preferences for Whole-Arm Manipulation**
  Rishabh Madan, Jiawei Lin, Mahika Goel, Amber Li, **Angchen Xie**, Xiaoyu Liang, Marcus Lee, Justin Guo, Pranav N. Thakkar, Rohan Banerjee, Jose A. Barreiros, Katherine M. Tsui, Tapomayukh Bhattacharjee
  Conference on Robot Learning (CoRL), 2025.
- **CaM-MPC: Contact-Aware Multimodal Model Predictive Control for Whole-Arm Dexterous Manipulation**
  Rishabh Madan, **Angchen Xie**, Andres Blanco, Xiaoyu Liang, Jose Barreiros, Kate Tsui, Tapomayukh Bhattacharjee
  In Submission

RESEARCH EXPERIENCE

Fault-Tolerant Control of Legged Robots under Multi-Sensor Fusion *Jan. 2025 - June 2025*

Advisor: **Yue Gao**, Associate Professor, Department of Automation, Shanghai Jiao Tong University
- Utilizing model-based reinforcement learning to enable hexapod robots to perform locomotion tasks in various environments and deploying the algorithm on real robots.
- Designing a fault-tolerant control algorithm that enables hexapod robots to quickly adapt to the failure of one or more joints and handle unknown failure scenarios, enhancing its generalization ability.
- Introducing multi-sensor fusion to enhance the robot's ability to perceive different terrains and failure scenarios, ultimately deploying it on real robots.

Multimodal Representation Learning for Whole-arm Manipulation *July 2024 - Dec. 2024*

Advisor: **Tapomayukh Bhattacharjee**, Assistant Professor, Department of Computer Science, Cornell University
- Proposed a contact-aware multimodal model predictive control framework to address widespread contacts in whole-arm robot assistive tasks.
- Designed an effective latent representation model for multimodal sensing data in whole-arm robot assistive tasks.
- Utilized a Unity-based simulator to test the proposed approach and its corresponding learned representations across various caregiving scenarios.

Feature Extraction of Different LIDAR Scanning Patterns for Intelligent Driving *Oct. 2023 - Mar. 2024*

[paper] [dataset] [presentation]

Advisor: **Yeqiang Qian**, Associate Professor, Department of Automation, Shanghai Jiao Tong University

- Examined the distinctions among different scanning patterns of LIDAR within the context of perception tasks in driving scenarios and identified a promising non-repetitive scanning pattern that demonstrates greater sensitivity to smaller traffic participants, with the maximum detection count increasing by 59.62%.
- Developed a dataset with LiDAR scanning patterns as the primary variable and conducted extensive evaluations to analyze their impact on the performance of state-of-the-art 3D detection algorithms across diverse data representation paradigms and backbone architectures.
- Contributed to advancing domain adaptation for 3D LIDAR perception tasks across different scanning patterns and provided valuable insights to inform the design of intelligent vehicles.

Large Model-based Semantic Segmentation of Images for Assisted Labeling Tasks *Nov. 2022 – Sept. 2023*

[video]

Advisor: **Ming Yang**, Distinguished Professor, Department of Automation, Shanghai Jiao Tong University

- Developed an automated system for semantic segmentation annotation of images leveraging the Segment Anything Model (SAM) and deployed it on real-world vehicles.
- Evaluated the system's performance on the Cityscapes dataset, and proposed corresponding improvement strategies, resulting in a significant increase in pixel accuracy from 64.7% to 90.8%.
- Tested the system's real-time performance in practical scenarios and conducted research on the future applications and potential of large models in real-world settings.

AWARDS & HONORS

- **Outstanding Graduate Award of Shanghai Jiao Tong University**, 2025
- **China National Scholarship (top 0.2%)**, 2024
- **The First Prize Academic Scholarship of Shanghai Jiao Tong University**, 2024
- **National First Prize of China Undergraduate Electronics Design Contest (top 1%)**, 2023
- **Second Prize of China Undergraduate Engineering Practice and Innovation Contest**, 2023
- **The First Prize Scholarship of Shanghai Shangjun Investment Management Co.**, 2023
- **The Second Prize Academic Scholarship of Shanghai Jiao Tong University**, 2023
- **First Prize of China Undergraduate Mathematical Contest (top 2%)**, 2022
- **Honorable Mention of Mathematical Contest in Modeling**, 2022
- **Third Prize of China Undergraduate Mathematical Contest in Modeling**, 2022
- **The Third Prize Academic Scholarship of Shanghai Jiao Tong University**, 2022
- **First Prize of Chinese Physics Olympiad**, 2020
- **Third Prize of Chinese Mathematical Olympiad**, 2020

SKILLS

Programming	C/C++, Matlab, LaTex, Python, Pytorch, ROS
Software	Office, SOLIDWORKS, CARLA, Origin, Arduino, Unity, Isaac Gym, MuJoCo
English	TOEFL: 107 (R: 30, L: 27, S: 22, W: 28)