

Anxing Xiao

Adaptive Computing Laboratory

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RESEARCH INTERESTS

My current research topics cover interactive decision making, motion planning, and assistive robotics. My long-term research goal is to develop autonomous robots that can reason and interact with the dynamic and open human-centred environments.

EDUCATION

National University of Singapore

Jan 2023 - present

Ph.D. student in Computer Science

Advisors: [Prof. David Hsu](#)

Harbin Institute of Technology

Aug 2017 - Jun 2021

B.Eng. in Automation (Robotics Track), GPA: 93.08/100 (Ranking 1/70)

University of California, Berkeley

Aug 2019 - Sep 2020

Visiting Student, GPA: 3.93/4.0

Advisor: [Prof. Koushil Sreenath](#); ICRA Best Paper Award Finalist for Service Robotics

EXPERIENCE

Robotic Perception and Intelligence Lab, SUSTech & CUHK

Aug 2021 – Jun 2022

Research Assistant with [Prof. Max Q.-H. Meng](#)

Shenzhen, China

Worked on autonomous trolley collection robots and fast Generalized Voronoi Diagrams generation.

Noah's Ark Lab, Huawei

Jan 2021 – Jul 2021

Research intern with [Prof. Jianzhuang Liu](#)

Shenzhen, China

Worked on image denoising algorithm based on Vector Quantized Variational Autoencoder and Swin Transformer.

Hybrid Robotics Lab, UC Berkeley

Mar 2020 – Mar 2021

Research intern with [Prof. Koushil Sreenath](#)

Berkeley, California

Worked on robotic guide dog and quadrupedal autonomous navigation with optimized jumping.

PUBLICATIONS

Preprint:

- [1] S. Yu, K. Lin, **A. Xiao**, J. Duan, H. Soh, "Octopi: Object Property Reasoning with Large Tactile-Vision-Language Models", Accepted to *Robotics: Science and Systems (RSS)*, 2024.
[\[Paper\]](#) [\[Website\]](#)
- [2] S. Chen*, **A. Xiao***, D. Hsu, "LLM-State: Expandable State Representation for Long-horizon Task Planning in the Open World", *In Submission*.
[\[Paper\]](#) [\[Video\]](#)

Conference:

- [1] B. Xia, H. Luan, Z. Zhao, X. Gao, P. Xie, **A. Xiao***, J. Wang*, and M. Q.-H. Meng, "Collaborative Trolley Transportation System with Autonomous Nonholonomic Robots", *International Conference on Intelligent Robots and Systems (IROS)*, 2023.
[\[Paper\]](#) [\[Video\]](#)
- [2] Y. Chen, Z. Xu, Z. Jian, G. Tang, Y. Yangli, **A. Xiao***, X. Wang*, and B. Liang, "Quadruped Guidance Robot for the Visually Impaired: A Comfort-Based Approach", *International Conference on Robotics and Automation (ICRA)*, 2023.
[\[Paper\]](#) [\[Video\]](#)
- [3] **A. Xiao***, H. Luan*, Z. Zhao*, Y. Hong, J. Zhao, J. Wang, and M. Q.-H. Meng, "Robotic Autonomous Trolley Collection with Progressive Perception and Nonlinear Model Predictive Control", *International Conference on Robotics and Automation (ICRA)*, 2022.
[\[Paper\]](#) [\[Video\]](#)
- [4] Z. Jian, Z. Lu, X. Zhou, B. Lan, **A. Xiao***, X. Wang*, and B. Liang, "PUTN: A Plane-fitting based Uneven Terrain Navigation Framework", *International Conference on Intelligent Robots and Systems (IROS)*, 2022.
[\[Paper\]](#) [\[Video\]](#) [\[Code\]](#)
- [5] **A. Xiao***, W. Tong*, L. Yang*, J. Zeng, Z. Li, and K. Sreenath, "Robotic Guide Dog: Leading a Human with Leash-Guided Hybrid Physical Interactions", *International Conference on Robotics and Automation (ICRA)*, 2021.
Best Service Robot Paper Finalist. [\[Paper\]](#) [\[Video\]](#) Media coverage: [\[Daily Mail\]](#) [\[New Scientist\]](#) [\[Tech Xplore\]](#) [\[Daily Californian\]](#) [\[Independent\]](#) [\[Futurism\]](#) [\[China Daily\]](#) [\[DeepTech \(Chinese\)\]](#)

- [6] S. Gilroy, D. Lau, L. Yang, E. Izaguirre, K. Biermayer, **A. Xiao**, M. Sun, A. Agrawal, J. Zeng, Z. Li, and K. Sreenath, "Autonomous Navigation with Optimized Jumping through Constrained Obstacles on Quadrupeds", *International Conference on Automation Science and Engineering (CASE)*, 2021.
[\[Paper\]](#) [\[Video\]](#) Media coverage [\[Video Friday\]](#)
- [7] Y. Wu, **A. Xiao**, H. Chen, S. Zhang, Y. Liu, "Amphibious Robot's Trajectory Tracking with DNN-Based Nonlinear Model Predictive Control", *International Conference on Advanced Intelligent Mechatronics (AIM)*, 2020
[\[Paper\]](#)

SELECTED AWARDS AND HONORS

- NUS Research Scholarship 2023
- Best Paper Award Finalist for Service Robotics at **ICRA '21** 2021
- Dean's Award. 2021
- First-class Undergraduate Academic Scholarship 2018-2021
- Provincial-Level Merit Student. 2019
- National Scholarship. 2018

PROFESSIONAL RESPONSIBILITIES

- *Journal Reviewing*: IEEE T-RO, IEEE RA-L, Biomimetic Intelligence and Robotics
- *Conference Reviewing*: ICRA '22 '23 '24, IROS '22 '24, ROBIO '21.
- *Mentorship*
 - Students
 - * Bingyi Xia [P.1], MS Student @ SUSTech 2022 - 2023
 - * Xuheng Gao [P.1], MS Student @ SUSTech 2022 - 2023
 - * Zhengzhe Xu [C.6], Undergrad @ HITsz → PhD @ HKU 2021 - 2022
 - * Yanbo Chen [C.6], Undergrad @ HITsz → MS @ Tsinghua Univ. 2021 - 2022
 - * Xiao Zhou [C.5], Undergrad @ HITsz → MPhil. @ HKUST 2021 - 2022

SKILLS

- **Programming**: Python, C/C++, MATLAB, HTML
- **Softwares & Tools**: ROS, PyTorch, OpenCV, CasADi, LCM, Solidworks, Gazebo, Isaac Sim, Git, LaTeX
- **Hardware**: Multiple Motors and Sensors, Arduino, Raspberry Pi, Basic Mechanical Design
- **Sports**: Table Tennis, Basketball, Soccer