Anxing Xiao

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RESEARCH INTERESTS

My current research topics cover motion planning, assistive robotics, and autonomous system design. My long-term research goal is to develop intelligent robots that can infer and interact with the dynamic and open world in long-horizon tasks.

EDUCATION

National University of Singapore *Jan 2023 - present*
Ph.D. student in Computer Science
Advisors: Prof. David Hsu

Harbin Institute of Technology, Shenzhen *Aug 2017 - Jun 2021*
B.Eng. in Automation, GPA: 93.08/100 (Rank 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

Preprints
* denotes equal contribution

1. **Collaborative Trolley Transportation System with Autonomous Nonholonomic Robots**
   Bingyi Xia, Hao Luan, Ziqi Zhao, Xuheng Gao, Peijia Xie, **Anxing Xiao***, Jiankun Wang*, Max Q.-H. Meng,
   *Under Review, **IROS** 2023*

Conference

6. **Quadruped Guidance Robot for the Visually Impaired: A Comfort-Based Approach**
   Yanbo Chen, Zhengzhe Xu, Zhuozhu Jian, Gengpan Tang, Yunong Yangli, **Anxing Xiao***, Xueqian Wang*, Bin Liang
   *Accepted by International Conference on Robotics and Automation (**ICRA**), 2023*

5. **PUTN: A Plane-fitting based Uneven Terrain Navigation Framework**.
   Zhuozhu Jian, Zihong Lu, Xiao Zhou, Bin Lan, **Anxing Xiao***, Xueqian Wang*, Bin Liang
   *International Conference on Intelligent Robots and Systems (**IROS**), 2022*

4. **Robotic Autonomous Trolley Collection with Progressive Perception and Nonlinear Model Predictive Control**.
   Anxing Xiao*, Hao Luan*, Ziqi Zhao*, Yue Hong, Jieting Zhao, Jiankun Wang, Max Q-H Meng
   *International Conference on Robotics and Automation (**ICRA**), 2022*

3. **Autonomous Navigation with Optimized Jumping through Constrained Obstacles on Quadrupeds**.
   Scott Gilroy, Derek Lau, Lizhi Yang, Ed Izaguirre, Kristen Biermayer, **Anxing Xiao**, Mengti Sun, Ayush Agrawal, Jun Zeng, Zhongyu Li, Koushil Sreenath
   *International Conference on Automation Science and Engineering (**CASE**), 2021*

2. [**Robotic Guide Dog: Leading a Human with Leash-Guided Hybrid Physical Interactions**](#).
   Anxing Xiao*, Wenzhe Tong*, Lizhi Yang*, Jun Zeng, Zhongyu Li and Koushil Sreenath
   *International Conference on Robotics and Automation (**ICRA**), 2021*
   🏆 Best Paper Award Finalist for Service Robotics.

1. [**Amphibious Robot's Trajectory Tracking with DNN-Based Nonlinear Model Predictive Control**](#).
   Yaqi Wu, **Anxing Xiao**, Haoyao Chen, Shiwu Zhang and Yunhui Liu
   *International Conference on Advanced Intelligent Mechatronics (**AIM**), 2020*

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, IROS '22, ROBIO '21.
- *Mentorship*
  - Students
    * Bingyi Xia [P.1], MS @ SUSTech *2022 - 2023*
    * Xuheng Gao [P.1], MS @ SUSTech *2022 - 2023*
    * Yanbo Chen [C.6], Undergrad @ HITsz → MS @ Tsinghua Univ. *2021 - 2022*
    * Zhengzhe Xu [C.6], Undergrad @ HITsz *2021 - 2022*
    * Xiao Zhou [C.5], Undergrad @ HITsz *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