Anxing Xiao

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RESEARCH INTERESTS

Socially-aware robotics, human-robot interaction, optimal planning and control, autonomous navigation, decision-making, casual reinforcement learning, probabilistic graphical models

EDUCATION

National University of Singapore *Jan 2023 – Jan 2027 (expected)*

Ph.D. Student in Computer Science

Harbin Institute of Technology, Shenzhen *Sep 2017 – Jul 2021*

B.Eng. in Automation, GPA: 93.08/100 (Rank 1/70)

✧ National Scholarship; Dean's Award; First-class Undergraduate Academic Scholarship; Provincial-Level Merit Student.

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

SUSTech Robot Perception & Intelligence Lab, Shenzhen *Aug 2021 – Jun 2022*

Research Assistant *with Prof. Max Q.-H. Meng, Prof. Hong Zhang*

✧ Worked on trolley collection robots that can autonomously collect trolleys by designing progressive perception system and safety-critical motion planning algorithm. Published at ICRA 2022.

✧ Worked on fast Generalized Voronoi Diagram (GVD) computation using Networks without training and application in improving the performance of RRT*.

Huawei Noah's Ark Lab, Shenzhen *Jan 2021 – Jul 2021*

Research Intern *with Prof. Jianzhuang Liu*

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

UC Berkeley Hybrid Robotics Lab, Berkeley *Mar 2020 – Mar 2021*

Research intern *with Prof. Koushil Sreenath*

✧ Worked on robotic guide dog robots that can automatically led the blind human to navigate in the narrow space without any collisions. Published at ICRA 2021.

✧ Worked remotely on autonomous navigation with optimized jumping through constrained obstacles for quadrupeds. Published at CASE 2021.

PUBLICATION

Google Scholar

[1] 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

Submitted to IEEE International Conference on Robotics and Automation (ICRA), 2023.

[2] PUTN: A Plane-fitting based Uneven Terrain Navigation Framework

Zhuozhu Jian, Zihong Lu, Xiao Zhou, Bin Lan, **Anxing Xiao**, Xueqian Wang, Bin Liang

IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2022.

[3] Robotic Autonomous Trolley Collection with Progressive Perception and Nonlinear Model Predictive Control

Anxing Xiao*, Hao Luan*, Ziqi Zhao*, Yue Hong, Jieting Zhao, Weinan Chen, Jiankun Wang, Max Q-H Meng

IEEE International Conference on Robotics and Automation (ICRA), 2022.

[4] Autonomous navigation for quadrupedal robots with optimized jumping through constrained obstacles

Scott Gilroy, Derek Lau, Lizhi Yang, Ed Izaguirre, Kristen Biermayer, **Anxing Xiao,** Mengti Sun, Ayush Agrawal, Jun Zeng, Zhongyu Li, Koushil Sreenath.

IEEE International Conference on Automation Science and Engineering (CASE), 2021.

[5] Robotic Guide Dog: Leading Human with Leash-Guided Hybrid Physical Interaction

Anxing Xiao*, Wenzhe Tong*, Lizhi Yang*, Jun Zeng, Zhongyu Li and Koushil Sreenath

IEEE International Conference on Robotics and Automation (ICRA), 2021. Best Paper Award Finalist for Service Robotics.

[6] Amphibious Robot's Trajectory Tracking with DNN-Based Nonlinear Model Predictive Control

Yaqi Wu*, **Anxing Xiao***, Haoyao Chen, Shiwu Zhang and Yunhui Liu

IEEE/ASME International Conference on Advanced Intelligent Mechatronics (AIM), 2020.

* Denotes equal contribution

ACADEMIC SERVICE

Journal Reviewer

✧ IEEE Transactions on Robotics (T-RO), 2021

✧ Biomimetic Intelligence and Robotics, 2021

Conference Reviewer

✧ IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2022

✧ IEEE International Conference on Robotics and Automation (ICRA), 2022, 2023

✧ IEEE International Conference on Robotics and Biomimetics (ROBIO), 2021

Undergraduate Research Mentor

✧ Quadruped Guidance Robot, Tsinghua University, 2021.9 – 2022.3

✧ Plane-Fitting based Uneven Terrain Navigation Framework, Tsinghua University, 2021.9 – 2022.3

SKILLS

Programming: Python, C/C++, MATLAB, HTML

Softwares&Tools: ROS, PyTorch, OpenCV, CasADi, LCM, Solidworks, Gazebo, Isaac Sim, Git, LaTeX

Hardware: Arduino, Raspberry Pi, Multiple Motors and Sensors, Basic Mechanical Design

Sports: Table Tennis, Basketball, Soccer