Xiao ZHOU

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Education

The Hong Kong University of Science and Technology Guangzhou, CHN
M.Phil. in Robotics and Autonomous Systems Thrust *Sep. 2023 – Jul. 2025*

- Advisor: Prof. Jun MA
- GPA: 3.78

Harbin Institute of Technology Shenzhen, CHN
B.Eng. in Electronics and Information Engineering *Sep. 2018 – Jun. 2023*

- Advisor: Prof. Zhihua YANG
- GPA: 83.77

Research Interests

Multi-agent system: Multi-Agent Reinforcement Learning (MARL), Markov Game, Robust MARL

Autonomous Driving: Driver Modeling, Safe Decision-Making and Motion Planning under Uncertainty, Human-Robot Interaction

Robotic Perception: Lidar SLAM

Selected Experience

Research Assistant Oct. 2022 – Jun.2023
Robotics and Autonomous Systems Thrust The Hong Kong University of Science and Technology
Supervisor: Prof. Jun MA Dept of Electronic and Computer Engineering

- Model the interactions and intentions of vehicles in urban driving scenarios in a Markov game and propose a general solution based on level-k game theory.
- Propose a temporal-spatial attention-based deep Q learning algorithm for decision-making in complex driving environments.

Undergraduate Research Assistant Jun. 2021 – Mar. 2022
AI & Robot Lab Tsinghua University, Shenzhen
Supervisor: Prof. Xueqian WANG School of Control Science and Engineering.

- Real-time slam and navigation on SCOUT—AgileX Robotics on extremely rough terrain.
- Local planning with NMPC and global planning by RRT*.
- Mapping with point cloud of the complex terrain with uncertainty based on Gaussian process regression.

Honors & Awards

Excellent Graduation Thesis for Undergraduate Students 2023

Outstanding Students 2020–2021, Harbin Institute of Technology, Shenzhen 2021

First prize in the College Students Mathematical Modeling Competitions 2020

Publications & Preprints

- **Xiao Zhou**, Chengzhen Meng, Wenru Liu, Zengqi Peng, Ming Liu, and Jun Ma, " Integrated Intention Prediction and Decision-Making with Spectrum Attention Net and Proximal Policy Optimization," Accepted to *27th IEEE International Conference on Intelligent Transportation Systems (ITSC)*, 2024. Preprint available: `https://arxiv.org/abs/2408.03191`. [PDF]
- Zengqi Peng, **Xiao Zhou**, Lei Zheng, Yubin Wang, Jun Ma, "Reward-Driven Automated Curriculum Learning for Interaction-Aware Self-Driving at Unsignalized Intersections," Accepted to *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*,2024. Preprint available: `https://arxiv.org/abs/2403.13674`. [PDF]
- **Xiao Zhou**, Zengqi Peng, Yusen Xie, Ming Liu, and Jun Ma, " Game-Theoretic Driver Modeling and Decision-Making for Autonomous Driving with Temporal-Spatial Attention-Based Deep Q-Learning," Accepted to *IEEE Transactions on Intelligent Vehicles*.
- Zengqi Peng, **Xiao Zhou**, Yubin Wang, Lei Zheng, Ming Liu, and Jun Ma, "Curriculum Proximal Policy Optimization with Stage-Decaying Clipping for Self-Driving at Unsignalized Intersections," Accepted to *26th IEEE International Conference on Intelligent Transportation Systems (ITSC)*, 2023. Preprint available: `https://arxiv.org/pdf/2308.16445.pdf`. [PDF]
- Zhuozhu Jian, Zihong Lu, **Xiao Zhou**, Bin Lan, Anxing Xiao, Xueqian Wang, Bin Liang, "PUTN: A Plane-fitting based Uneven Terrain Navigation Framework," Accepted to *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2022. Preprint available: `https://arxiv.org/abs/2203.04541`. [PDF] [Video]

Skills

Languages: English (*IELTS* 6.5), Mandarin Chinese (native)

Programming: C/C++, Python, HTML

Tools: Git, MATLAB/Simulink, PyTorch, Solidworks, ROS, Gazebo, Linux, LaTeX

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