Jiaxi Huo

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Born: March 10, 1998—Jiangsu, China
Research areas: multi-robot collaboration and navigation, robot control, SLAM.
Academic website: https://huojiaxi.github.io/

Education

2018-2020	**École Centrale de Lille, Lille, France** Diplôme d'Ingénieur Général (Double Degree) Tutor of Défi: Prof. Emmanuel Delmotte Total ECTS credits validated: 116 (Score: 3.64/4.00)
2020-2023	**College of Electrical Engineer, Zhejiang University, Hangzhou, China** MSc in Electrical Engineering, Top 1/41 Advisor: Assoc. Prof. Ronghao Zheng Thesis: Research on Multi-robot Path Planning for High-density Warehouse Environment
2016-2020	**College of Electrical Engineer, Zhejiang University, Hangzhou, China** BSc in Automation (Electrical Engineering), Top 29% Advisor: Assoc. Prof. Ronghao Zheng Thesis: Multi-robot path planning based on integer programming

Research

2023-2024	**Thesis: All-terrain 4WIS4WID autonomous mobile robot system** **Achievements: A robotics prototype, 1 academic paper (1st author)** Aiming at complex mission scenarios, we develop a all-terrain 4-wheel-steering-4-wheel-driving (4WIS4WID) robot system and independently develop key technologies such as chassis control algorithms, navigation algorithms and autonomous charging algorithms.
2023-2023	**Thesis: Intelligent wheeled inspection robot system** **Achievements: An inspection robot that has been put into practical use** We built a robot simulation platform and physical platform based on ROS and Gazebo. We independently developed a full set of robot navigation algorithms, including multi-threaded dynamic path planning algorithms and high-precision path tracking algorithms, with positioning accuracy within ± 2cm, to achieve cross-floor and cross-room inspections.
2023-2023	**Thesis: Lunar exploration quadruped robot** **Achievements: A quadruped robotics prototype** Deeply involved in the research and development of quadruped robot projects for lunar exploration missions, mainly involved in the development of algorithms related to the navigation system (LIO-SAM and RRT applied).
2020-2022	**Thesis: Research on distributed planning problem of multi-robot systems for collaborative tasks (Bachelor's and master's thesis)** **Achievements: Published 4 SCI/EI academic papers (1st author, 1 Best Paper Finalists award), achieved 1 invention patent (2nd author)** We propose the two-layer multi-robot path planning framework and control algorithm. Compared with the current mainstream multi-robot path planning algorithm, it has higher solution efficiency in high-density industrial warehousing environments.

Publications and Patents

Huo J[22]Zheng R, Zhang S, et al. Dual-layer multi-robot path planning in narrow-lane environments under specific traffic policies[J]. Intelligent Service Robotics, 2022, 15(4): 537-555.

Huo J[22]Zheng R, Zhang S, et al. Multi-robot Path Planning Algorithm in Dense Environments Using Particular Collision-free Traffic Rules[C]//2022 IEEE/ASME International Conference on Advanced Intelligent Mechatronics (AIM). IEEE, 2022: 10-15. **Best Paper Finalists**

Huo J[22]Zheng R, Zhang S, et al. Multi-Robot Path Planning in Narrow Warehouse Environments with Fast Feasibility Heuristics[C]//41st Chinese Control Conference (CCC). IEEE, 2022: 1840-1845.

Invention Patent Authorization: Zheng Ronghao, **Huo Jiaxi**, Liu Meiqin, Zhang Senlin. 2021. A Method and Device for Multi-Robot Path Planning. CN112817316A

Huo J[23] Dual-layer One-way Multi-robot Path Planning in Dense Environments[C]//2023 IEEE Conference on Robotics and Biomimetics, Accepted.

Experiences

2023-2024	*Engineer of Control Algorithm*, Department of Space Artificial Intelligence Control and Application, China Academy of Space Technology Hangzhou Institute
2022-2022	*Engineer of Testing and Development*, Quality and Technology Risk Department (Digital finance), Ant Group (Alibaba)

Selected Awards

2023	Outstanding Graduates of Zhejiang Province, Provincial Department of Education
2023	Outstanding Graduates of Zhejiang University, Zhejiang University
2022	**Best Paper Finalists**, 2022 IEEE/ASME International Conference on Advanced Intelligent Mechatronics (AIM), IEEE, one of the top conferences in robotics and mechatronics
2022	**National Scholarship for Graduate Excellence**, Ministry of Education
2022	Wang Guosong Scholarship (the highest honor of my college), Zhejiang University
2022	Merit Postgraduate, Zhejiang University
2021	HUAWEI Scholarship, Zhejiang University
2021	Goden Prize of "Internet+" Innovation and Enterpreneurship Competition, Ministry of Education
2020, 2021	Merit Graduate Student & Award of Honor for Graduate, Zhejiang University
2018	China Scholarship Council (CSC) scholarships, China Scholarship Council

Academic Activities

Services: Reviewer for IEEE/ASME International Conference on Advanced Intelligent Mechatronics (AIM), Chinese Control Conference (CCC), Chinese Control and Descision Conference (CCDC), International Conference on Computer Science and Application Engineering (CSAE)

Presentations: IEEE/ASME AIM 2022, Sapporo, Japan. IEEE CCC 2022, Hefei, China

Capacities

Programming: ROS, C++, PYTHON, MATLAB, C, JAVA, MYSQL

Proficient in robot navigation (SLAM, path planning, etc.) and control algorithms, Proficient in optimizers (Gurobi, Cplex, etc.)

Responsiblity, communication skills, literature reading and research capabilities

Languages: Passing CET-4 and CET-6; **DELF B2 (81/100); TOEIC (975/990)**