Jiaxi Huo

Engineer of Control Algorithm
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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

2022 **Huo J**, 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.

2022 **Huo J**, 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**

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

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

2023 **Huo J**. 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*, Research assistant, 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)**