

Weijian Zhang

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UoB Student Profile
Personal Website

Research

I am a PhD student in the Intelligent Robotics Lab at the University of Birmingham. My current research is focused on motion planning and formation control in multi-robot systems. To achieve this, I apply planning and optimal control to enable robots to exhibit safe, efficient, and reliable behavior.

Research Interests

- Formation Control
- Multi-Robot Coordination
- Multi-Robot Motion Planning
- Human-aware navigation

Education

- **DPhil in Computer Science at the University of Birmingham 2023-Present**
 - Thesis: *Formation Control and Motion Planning for Multi-Robot System*
 - Supervisors: Masoumeh Mansouri, Vahid Mamduhi and Charlie Street
- **MSci in Robotics at the University of Birmingham 2021-2022**
 - Thesis: *Multi-robot object delivery in formation based on convex optimization*
 - Supervisor: Masoumeh Mansouri
 - Degree Class: Distinction
- **BEng in Automation at the Southwest Jiaotong University 2017-2021**
 - Supervisor: Yiduo Zhou
 - Degree Class: Merit

Technical Skills

Languages

English (Fluent)/Chinese (Native)

Programming Languages

- C++** I can use classes and templates on top of the underlying C functionality.
C I have strong experience with memory management, pointers etc.
Python I am very familiar with Python, having used it for many projects.

Other

- Git** I have experience using Git, having used it for any significant project I have partaken in.
- LaTeX** I've produced many documents in LaTeX, notably my MSc dissertation.
- ROS** I've had experience working with/running robotics systems using the ROS middleware.

Service

- **Conference Reviewing:** IEEE International Conference on Robotics and Automation (ICRA) - 2023, 2024; IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) - 2024; International Conference on Autonomous Agents and Multiagent Systems (AAMAS) - 2024.

Teaching

- Teaching Assistant: University of Birmingham
 - Module: LM Robot Motion Planning and Control 2025
 - Module: LM Intelligent Robotics 2024
 - Module: LH Intelligent Robotics 2024
 - Module: LM Advanced Robotics 2024
 - Module: LH Artificial Intelligence 1 2024, 2025
 - Module: LH Computer Vision and Imaging 2023
 - Module: LM Robot Vision 2023

Honors & awards

- Best Poster award at The 7th IEEE UK & Ireland RAS Conference 2024
- Awarded MCS Prize for Best 2022
- Awarded Comprehensive Scholarship of Southwest Jiaotong University 2020
- Awarded Comprehensive Scholarship of Southwest Jiaotong University 2019

Publications

- [1] Weijian Zhang, Charlie Street, and Masoumeh Mansouri. “Multi-Nonholonomic Robot Object Transportation with Obstacle Crossing using a Deformable Sheet”. In: *Proceedings of the International Conference on Robotics and Automation (ICRA)*. **NOMINATED FOR SOMETHING - WRITE WHEN WE KNOW**. 2025. URL: <https://research.birmingham.ac.uk/en/publications/multi-nonholonomic-robot-object-transportation-with-obstacle-cros>.
- [2] Weijian Zhang, Charlie Street, and Masoumeh Mansouri. “A decoupled solution to heterogeneous multi-formation planning and coordination for object transportation”. In: *Robotics and Autonomous Systems* (Aug. 2024), p. 104773. URL: <http://dx.doi.org/10.1016/j.robot.2024.104773>.
- [3] Weijian Zhang, Charlie Street, and Masoumeh Mansouri. “Multi-Formation Planning and Coordination for Object Transportation”. In: *2023 European Conference on Mobile Robots (ECMR)*. IEEE, Sept. 2023. URL: <http://dx.doi.org/10.1109/ecmr59166.2023.10256314>.