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

- ICRA 2025 Best Multi-Robot Systems Paper Award Finalist 2025
- 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

References

- Masoumeh (Iran) Mansouri (University of Birmingham) - `m.mansouri@bham.ac.uk`
- Charlie Street (University of Birmingham) - `c.l.street@bham.ac.uk`

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 Best Multi-Robot Paper, Best Student Paper, Best Paper**. 2025.

[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.