

Dr. Chuhao QIN

Research Fellow in University of Leeds

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My research develops trustworthy multi-agent learning for embodied autonomous systems. I combine reinforcement learning, distributed optimization and hands-on drone experimentation to understand when autonomous robots should act, coordinate or defer decisions under uncertainty. My long-term goal is to establish an independent research group in defer-capable robotic autonomy.

WORK EXPERIENCE

07/2025 to present	University of Leeds, UK	<i>Research Fellow in distributed multi-drone coordination, School of Computer Science</i> 4 manuscripts under review, 1 PhD co-supervised
07/2017 to 09/2017	Harbin Institute of Technology, China	<i>Research Assistant in Mechanical and Electrical Engineering and Automation</i>

EDUCATION

10/2021 to 09/2025	University of Leeds, UK	<i>PhD in Computer Science</i> <i>Awarded 16/09/2025 with excellence</i> 6 publications, 4 fundings, 3 awards
09/2018 to 06/2021	University of Electronic Science and Technology of China	<i>MSc in Signal and Information Processing</i> <i>Top 2% in China, GPA: 3.65/4.0, 1 Publication</i>
09/2014 to 06/2018	University of Electronic Science and Technology of China	<i>BSc in Electronic Information Engineering</i> <i>Top 2% in China, GPA: 3.51/4.0</i>

SELECTED RESEARCH ACHIEVEMENTS

- **Made distributed AI think across time scales efficiently:** integrated short-term distributed optimization and long-term reinforcement learning, achieving 20-30% lower costs than standalone methods.
- **Developed scalable drone coordination for intelligent transportation missions:** demonstrate distributed task allocation for 1,000 drone dispatches across full-day, city-sized traffic monitoring and logistics.
- **Bridge the gap from simulation to real deployment:** built an experimentation pathway from software simulation to indoor Crazyflie testbeds (5 minutes, 25m²) and controlled DJI outdoor drone platforms (30 minutes, 780 acres), supporting autonomous flight, recharging, collision avoidance, etc.
- **Systematic review:** collected and analyzed 6,000 papers concerned to edge computing and blockchain systematically using machine learning.

FUNDING, AWARD AND RECOGNITION

09/2025	PhD thesis awarded with Research Excellence.
2021-2026	Travel Sponsorship (£8k), university school scholarship for international conference.
10/2024	The First ENFIELD Exchange Scheme (€10k).
06/2024	Best Student Project, MEng Group Project at University of Leeds.
01/2024	Alan Turing Scheme (£600), international placement.
07/2023	EPS International Academic Mobility Pump-priming Fund (£5k).
05/2023	Best Paper Award, ACM, 22 nd international conference of AAMAS.
Before 2022	3x Scholarship in the academic year, 2x the First-class Scholarship for Graduate students, 1x excellent bachelor's degree thesis of Glasgow College, UESTC

LEADERSHIP, TEACHING AND SUPERVISION

2024-2026	Co-supervision of PhD student majoring in swarm intelligence of drones; weekly meetings, research design and 1 paper drafting as a co-authored.
2023-2024	Co-supervise and lead 10-student MEng drone-swarm project; planning, task allocation, hardware /software integration. One published paper in Core A conference (IEEE LCN).
2023	Examination preparation and marking of written/programming work using Gradescope.
2022	Research-informed blockchain-enabled UAV teaching materials used for 150+ students.
2021-2022	Computer architecture tutorials, 20 students.

INTERNATIONAL VISITS AND COLLABORATIONS

LUT University, Finland, 2023 — international placement (2 weeks) and collaboration with Prof. Nardelli (cyber-physical systems) on learning-based route planning for drone delivery, supported by EPS fund.

UPB University, Romania, 2025 — ENFIELD-supported collaboration with Prof. Florea (multi-agent systems) on trustworthy AI for electric vehicle charging. Six months of collaboration and one month for international visits.

EPFL, Switzerland, 2021-2023 — collaboration with Dr Chaniotakis and Prof. Geroliminis (urban transport system) using pNEUMA transport dataset and SUMO-based traffic flow data for multi-drone traffic monitoring.

Aarhus University, Denmark, 2024-2026 — collaboration with Dr Esterle (self-organizing autonomous systems) on privacy-aware smart cameras and socially responsible coordination.

University of Sheffield, UK, 2022 — collaboration with Prof. Mihaylova (sensor fusion) on multi-drone experimentation testbed for distributed sensing.

Apian/Skyfarer, UK, 2026 — facing discussions: explainable drone behavior, medical logistics, BVLOS and stakeholder trust.

COMMUNITY ENGAGEMENT

Invited talk / presentation, 30th Anniversary of TRC journal 2023, 50th Anniversary of EURO 2025, Advancing AI in Europe: From foundations to real-world applications 2026, EV & Batteries Research Workshop 2026.

Conference presentation, IEEE LCN 2024, AAMAS 2023 (Best Paper Award), UKCI 2022.

Laboratory management, Lab procurement and research infrastructure coordination; Setup of drone testbed, equipment, and lab layout; Guidance for new lab members on expenses, travel and reimbursement.

Academic activities, Liaison Man in Alan Turing Workshop 2023, and Smart X WanFeng Summit 2019 .

Review, 10 peer reviews for ACSOS 2026, IEEE Transactions on Evolutionary Computation, IEEE Transactions on Network and Service Management, IEEE Internet of Things Journal.

OPEN-SOURCE SOFTWARE AND DATA

M-SET: Multi-drone swarm intelligence experimentation with collision avoidance realism at [\[M-SET\]](#), with a documentation for guidance [\[M-SET-doc\]](#).

Constraints modelling in decentralized software, enforcing individual and aggregate level constraints for EPOS project for Collective Learning which is selected in the top 100 project by UNESCO IRCAI [\[EPOS\]](#).

The datasets of multi-drone energy-efficient sensing using collective learning [\[Figshare1\]](#), reinforcement learning [\[Figshare2\]](#), and DJI EDU Tello UAVs [\[Figshare3\]](#).

The dataset of privacy-aware orientation plans of smart cameras in [\[Figshare4\]](#)

KEY SKILLS

Areas of expertise, Machine learning, Deep/Reinforcement Learning, Multi-agent Systems, Distributed Optimization, Trustworthy AI, Responsible AI, Blockchain Technologies, Computer Architecture.

Programming, Python, Java, C, C++, Shell scripting, Objective-C.

Hardware, Crazyflie UAV, DJI Matrice series and Mavic series, DJI EDU Tello UAV.

Methods, simulation, testbed experimentation, data analysis, route planning, constraint modelling.

Tools and Interface, Pytorch/Tensorflow, UAV tools (Crazyflies PC client, Gazebo, Crazyswarm), IOS tools (Xcode, React Native, Charles Proxy), Go-Ethereum.