Ameer Alhashemi

Birmingham, UK — ameeralhashemi.ah@gmail.com — github.com/TallowCatch — linkedin.com/in/ameer-alhashimi
University of Birmingham — English (fluent), Arabic (fluent)

Research interests

Cooperative AI and multi-agent reinforcement learning, with emphasis on interaction outcomes in mixed-motive settings and generalisation under uncertainty. Interests include sequential social dilemmas, commons governance, lightweight norm enforcement mechanisms such as reputation and decentralised sanctioning, and evaluation under distribution shift. Interested in benchmark design for cooperative competence, including generalisation to unseen partners and incentive regimes. Particularly interested in studying generalisation of cooperative policies using multi-agent RL baselines such as Independent PPO and MAPPO under partner and incentive distribution shift. Strong preference for evaluation-driven research with reproducible simulation testbeds and behavioural metrics beyond return, including robustness, stability, and fairness.

Education

University of Birmingham *Expected Jun 2026*
MEng Computer Science and Software Engineering

- GPA 4.0/4.0; on track for First Class. Chancellor's Academic Merit Scholarship.
- Master's dissertation: REDNET-ML — geospatial environmental risk modelling with emphasis on temporal generalisation and distribution shift evaluation.
- Relevant modules: Machine Learning, Artificial Intelligence, Robotics, Game Theory, Data Structures and Algorithms, Software Engineering.

GEMS Wesgreen International School *2020*
AS Levels

- AAA (Economics, Mathematics, Physics).

Research experience

RANT — Ant-inspired Multi-Robot Exploration *Python, Webots simulation and evaluation*

- Built a multi-robot exploration testbed studying decentralised coordination under noisy sensing and partial observability; implemented pheromone-style no-revisit policies and particle-filter localisation.
- Ran controlled sweeps over team size and environment scale; in a 10×10 arena, unique coverage increased from 8.5% to 18.1% (N=1→5) and hotspot recall from 20.0% to 65.6%; wrote a technical report with reproducible experimental setup and metrics.

AWRP — Arctic Weather-Dependent Routing Project *Python, graph modelling and multi-objective optimisation*

- Built a simulator evaluating candidate decision policies under stochastic, time-varying environmental constraints, modelling explicit trade-offs between efficiency and safety.
- Implemented obstacle-aware graph validation and repeatable scenario evaluation loops with multi-objective optimisation using NSGA-II; delivered an interactive evaluator to analyse robustness under distribution shift.

REDNET-ML — Geospatial Environmental Risk Mapping *Python, machine learning pipeline*

- Built a multi-sensor geospatial ML pipeline for harmful algal bloom risk mapping, fusing detector confidence scores with oceanographic features.
- Emphasised temporal generalisation by evaluating time-based cross-validation under strong distribution shift and showing CatBoost fusion improved AUPRC (∼0.64→∼0.78) over logistic baselines.

Hemayah — TinyML Fall Detection *Python, embedded machine learning*

- Built a supervised IMU-based fall detection pipeline and deployed a lightweight TinyML model for embedded inference.
- Studied robustness under class imbalance, sensor noise, and user variation; achieved weighted F1 of 0.84 and conducted structured failure-mode analysis with mitigation strategies.

SCoPs — Student Communities of Practice *Research assistantship*

- Supported a commissioned institutional research project by organising evidence, synthesising qualitative findings, and drafting research outputs.
- Produced research-style written outputs with traceability from claims to supporting evidence and collaborated

across Dubai and Edgbaston stakeholders.

Experience / positions of responsibility

Forensics Intern, KPMG Lower Gulf *Jun 2025 – Aug 2025*
Internship

- Automated Python workflows for multi-source investigative datasets, improving data consistency through validation and normalisation pipelines.
- Applied structured evidence traceability aligned with compliance-style documentation and reproducibility requirements.

Teaching Assistant, University of Birmingham Dubai *Oct 2024 – Dec 2024*
Teaching support

- Supported lab sessions and supervised student technical projects, providing structured debugging and methodological guidance.
- Promoted reproducible coding and reporting practices in coursework submissions.

Student President, University of Birmingham Dubai *Nov 2024 – Apr 2025*
Student leadership

- Represented students in institutional committees and led cross-department initiatives with faculty coordination.
- Developed stakeholder governance and coordination experience relevant to collaborative research environments.

R&D and Product Analyst, Stealth Mode Company *Sep 2024 – Oct 2024*
Part-time role

- Produced technical research briefs and system-level proposals; evaluated platform architectures for feasibility and scalability.
- Conducted a UX systems case study analysing user interaction flows and translating findings into product-level design recommendations.

Research outputs

- Fostering Student Communities of Practice at the University of Birmingham Dubai, Aug 2023.
- RANT: Ant-Inspired Multi-Robot Rainforest Exploration Using Particle Filter Localization and Virtual Pheromone Coordination — Manuscript in preparation.

Conferences and workshops

- King's AI Symposium, London, Jan 2026 (attendee).

Technical skills

- Programming: Python, C, SQL.
- Machine learning: PyTorch, TensorFlow, TFLite, CatBoost; CUDA; model evaluation under distribution shift.
- Simulation and modelling: Webots; graph-based modelling; multi-objective optimisation (NSGA-II); robustness testing under stochastic environments.
- Research tooling: Git, Linux, Docker, LaTeX; reproducible project structuring and experiment logging.

Interests

Cooperative AI and multi-agent systems; governance and norm enforcement in AI systems; simulation-based evaluation and benchmark design; reproducible research software and open-source infrastructure; robotics and embedded machine learning; mentoring and academic leadership.

References

- Associate Professor Shuo Wang — University of Birmingham.
- Professor Yusra Mouzughi — Provost, University of Birmingham Dubai.