YASIR ZUBAYR BARLAS

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EDUCATION

The University of Manchester *September 2024 - March 2028*
PhD Computer Science
Affiliated with the ELLIS Society as a PhD Student; Visiting Researcher at TU Delft (2026-27)
Thesis Title: Enhancing Out-of-Distribution Generalisation in Human-Guided Sequential Experimental Design
Supervisors: Prof Samuel Kaski, Prof Frans A. Oliehoek, Dr Sabina Sloman

City St George's, University of London *September 2023 - September 2024*
MSc Artificial Intelligence
Grade: Distinction (≈ 4.0 GPA)

Queen Mary University of London *September 2020 - July 2023*
BSc (Hons) Mathematics
Grade: 1st Class Honours (≈ 4.0 GPA)
Certification: Bloomberg Market Concepts, Microsoft Office Specialist: Excel Associate

Relevant Modules: Statistical Modelling, Linear Programming and Game Theory, Bayesian Statistics, Random Processes, Python/R/C++, Time Series, Machine Learning, Computational Statistics, Deep Learning, Deep Reinforcement Learning, Agents and Multi-Agent Systems

EXPERIENCE

Queen Mary, University of London *May 2023 - September 2023*
Academic Research Intern in Image Analysis and Network Science *London, UK*

- Conducted in-depth analysis of calcium imaging video-data derived from cardiac tissue, employing advanced techniques in image analysis
- Utilised Python for comprehensive data analytics, encompassing image processing and methods from network science to extract meaningful insights from videos of atrioventricular nodes
- Collaborated with supervisor Dr Anna Maltsev in developing code and producing results, with the work being presented at the Biophysical Society Meeting 2024 - pending acceptance at a journal

Infosys *June 2022 - August 2022*
Research Intern *London, UK*

- Formulated innovative solutions for business marketing challenges, demonstrating analytical and problem-solving skills
- Investigated the application of artificial intelligence in marketing strategies, contributing insights into cutting-edge technologies
- Conducted comprehensive research in the intersection of data and marketing, in preparation of a detailed report for the Digital Experience team, providing valuable strategic guidance

Queen Mary, University of London *June 2021 - August 2021*
Academic Research Intern in Probability *London, UK*

- Conducted research into the probabilistic field of the law of small numbers
- Utilised the programming language R to perform complex calculations and generate insightful visualisations to enhance data interpretation
- Collaborated with supervisor Dr Dudley Stark in the creation of an academic paper, which has been successfully accepted by a journal, showcasing the research findings

PROJECTS (GITHUB: YASIR BARLAS)

Master's Thesis: Algorithmic Comparisons for Sequential Experimental Design *Python Libraries: Garage, Pyro, PyTorch*

- Assessed the generalisation capabilities of reinforcement learning agents on experimental design problems, when the statistical models differ at test time from training time
- Devised an improved combination of the SUNRISE and DroQ algorithms that performs well on two experimental design problems
- Written a paper of the findings together with supervisor Dr Kizito Salako, which has been accepted at the '8th Workshop on Generalization in Planning' at AAAI 2025

Bachelor's Thesis: Naive Bayes and Sentiment Analysis *R*
Packages: e1071, gmodels, tm, wordcloud

- Conducted sentiment analysis on Amazon and Yelp reviews using a machine learning algorithm known as the naive Bayes classifier
- Implemented a comparative analysis with a logistic regression model, showcasing a nuanced approach to model selection and evaluation
- Achieved an accuracy rate of 77%, and proposed strategies to improve this accuracy further

POSITIONS OF RESPONSIBILITY

The University of Manchester *January 2025 - September 2027*
Graduate Teaching Assistant *Manchester, UK*

- Assisting lecturers on modules in statistics and machine learning
- Helping students understand module content better, and debugging relevant code
- Marking coursework and exams

Queen Mary, University of London Students' Union *September 2022 - June 2023*
Mathematics Course Representative *London, UK*

- Engaged in constructive discussions with the student-staff-liaison committee to analyse and address feedback provided by students in regular meetings
- Demonstrated leadership by co-chairing segments of liaison committee meetings
- Implemented a systematic approach to surveying students, seeking their insights to make improvements and adjustments to the Mathematics curriculum

Queen Mary, University of London *September 2022 - June 2023*
Peer Assisted Study Support Mentor *London, UK*

- Delivered valuable support to first-year students by addressing questions and clarifying concepts related to their Mathematics course modules
- Provided a supportive and engaging environment for students to discuss study-related challenges and seek advice
- Orchestrated weekly mentoring sessions, tailoring each session to meet the specific needs and challenges of participating students

CONFERENCE AND JOURNAL PAPERS

Harikumar, H., Katt, S., **Barlas, Y. Z.**, and Kaski, S. (2026), "Robust Bayesian Decision Making under Adversarial Uncertainty", *Proceedings of the 42nd Conference on Uncertainty in Artificial Intelligence*, PMLR **337**:1983-2007

Barlas, Y. Z. and Stark, D. (2023), "An investigation into the law of small numbers using R", *Ball State Undergraduate Mathematics Exchange*, **17**(1):2–14

POSTER PRESENTATIONS AND WORKSHOP PAPERS

Barlas, Y. Z., Sloman, S. J., and Kaski, S. (2025), "From Bayesian to Generalised Bayesian Experimental Design", *1st Workshop on Epistemic Intelligence in Machine Learning (EIML 2025) EurIPS 2025*

Barlas, Y. Z. and Salako, K. (2025), "Performance Comparisons of Reinforcement Learning Algorithms for Sequential Experimental Design", *8th Workshop on Generalization in Planning (GenPlan) AAAI 2025*

PREPRINTS

Barlas, Y. Z., Sloman, S. J., and Kaski, S. (2025), "Robust Experimental Design via Generalised Bayesian Inference", *arXiv preprint arXiv:2511.07671.*

Maltsev, A. V., **Barlas, Y. Z.**, Hazan, A. T., Zhang, R., and Goldhaber, J. I. (2024), "Dual network structure of the AV node", *arXiv preprint arXiv:1409.0473.*

TALKS

"Robust Experimental Design via Generalised Bayesian Inference" at the ELLIS Doctoral Symposium in Lisbon (2026)

"An Introduction to Reinforcement Learning" at The University of Manchester to Google DeepMind Research Ready Summer Interns (2026)

"Robust Experimental Design via Generalised Bayesian Inference" at The University of Manchester Department of Computer Science PGR Symposium (2026)

"Robust Experimental Design via Generalised Bayesian Inference" at The University of Warwick to Theo Damoulas' Group (Online; 2025)

REVIEWING

Reviewer at the 'Workshop on Next Generation of Discovery Loops (NGDL)' in [ELLIS UnConference 2026]

Reviewer at the 'Workshop on Epistemic Intelligence in Machine Learning (EIML)' in [EurIPS 2025, ICML 2026]

LEADERSHIP

Organiser of the 'Bayesian Experimental Design & Active Learning (BEDAL) Seminar Series'

Organiser of the 'Manchester Workshop on Bayesian Experimental Design 2026'

Supporting doctoral recruitment for the Centre for AI Fundamentals at The University of Manchester

AWARDS

Below are awards provided to pursue research, further study, or awards for academic achievement:

- The University of Manchester Department of Computer Science Studentship (2024 - 2027)
- Dean's Award for Outstanding (Master's) Project at City St George's (2025)
- G-Research ELLIS Doctoral Symposium Travel Fund (2024)
- City St Georges Global STEM Leadership Masters Scholarship (2023 - 2024)
- Royal Society Summer Research Stipend through Dr Anna Maltsev (2023)
- Queen Mary Undergraduate Summer Research Studentship (2021)

- ELIAS ELLIS Doctoral Symposium Travel Fund (2026)
- ELIAS Mobility Fund for 6-month Research Visit to the Netherlands (2026 - 2027)

TEACHING

The University of Manchester *January 2025 - Ongoing*
Graduate Teaching Assistant *Manchester, UK*

Duties include assisting students with lab tasks, and supporting with coursework/exam marking

- DATA70132: Statistics & Machine Learning II: AI, Complex Data, Computationally Intensive Statistics **(Semester 2, 2024/25)**
- COMP16321: Introduction to Programming I **(Semester 1, 2025/26)**
- COMP64101: Reasoning and Learning under Uncertainty **(Semester 1, 2025/26)**
- COMP34612: Computational Game Theory **(Semester 2, 2025/26)**
- COMP36212: Mathematical Systems and Computation **(Semester 2, 2025/26)**
- COMP64202: Reinforcement Learning **(Semester 2, 2025/26)**

SKILLS

Programming Languages	C++, R, Python, MySQL, LaTeX, HTML, CSS
Machine Learning Frameworks	scikit-learn, PyTorch, TensorFlow, Keras
Data Visualisation	Excel, Tableau