YASIR ZUBAYR BARLAS

yasir-zubayr.barlas@city.ac.uk ⋄ (+44) 7387 967306 ⋄ LinkedIn: Yasir Barlas

EDUCATION

The University of Manchester *September 2024 - September 2027*
PhD Computer Science
Thesis Title: Enhancing Out-of-Distribution Generalisation in Human-Guided Sequential Experimental Design

City, University of London *September 2023 - October 2024*
MSc Artificial Intelligence
Expected 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, and is also expected to contribute to an academic paper

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)

Image Super-Resolution using Deep Learning *Python*
Libraries: NumPy, Pillow, PyTorch, Wandb

- Improved the SRResNet architecture by introducing self-attention, disabling batch normalisation, and using the GELU activation function, finding improved PSNR and SSIM
- Used the improved SRResNet model as the generator for SRGAN, setting new baselines for the Fréchet inception distance metric, and improving on the original SRGAN in terms of perceptual quality for this metric
- Explored self-attention, normal weight initialisation, and spectral normalisation in the discriminator for SRGAN, arguing that these recommended changes in the literature do not apply

Undergraduate Dissertation: 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

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

Loxford School *November 2018 - July 2019*
Computing Assistant Teacher *London, UK*

- Collaborated with the class teacher to provide valuable assistance and to address student queries
- Demonstrated a passion for teaching and a commitment to empowering students with essential programming skills
- Inspired and motivated students to pursue computer science in the future

PUBLICATIONS

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.* [**PRE-PRINT, FINAL JOURNAL TBC**]

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 [**PAPER**]

AWARDS

Below are awards provided to pursue research or further study:

- G-Research ELLIS Doctoral Symposium Travel Fund (2024)
- City, University of London Global STEM Leadership Masters Scholarship (2023 - 2024)
- Royal Society Summer Research Stipend through Dr Anna Maltsev (2023)
- Queen Mary Undergraduate Summer Research Studentship (2021)

SKILLS

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