Rosco Hunter

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PhD candidate in the AI Systems Lab at the University of Warwick, focusing on Automated Machine Learning, supervised by Dr Hongkai Wen. Research interests encompass the principles of intelligent systems and AI governance. Received a First Class (85%) BSc in Mathematics from the University of Warwick, achieving a first in all 25 assessed modules

Education

University of Warwick   2022 - Present
PhD Candidate in Machine Learning
- Joint first author of "Exploiting Network Compressibility and Topology in Zero-Cost NAS", published in the International Conference on Automated Machine Learning, 2023 (26% acceptance rate)
- This received the "Best Paper Award" and was written in collaboration with the SAIC lab (Samsung AI Cambridge)
- The paper exploited redundancies in an untrained network's gradients (learning) and activation patterns (representations) to predict its trained performance - achieving state-of-the-art results at zero-cost network ranking
- Current research direction focuses on improving the latency of text-to-image diffusion models by exploiting redundancies in their sampling procedure

University of Warwick   2019 - 2022
BSc Mathematics
- First Class Degree (85%), receiving a high first (at least 75%) in all 25 assessed modules taken whilst at Warwick
- Key Taught Modules: Math of Machine Learning (87%); Applied Dynamical Systems (81%); Bayesian Statistics (88%); Mathematical Biology (81%); Modelling & Numerics (95%); Neural Computing (84%); Advanced Linear Algebra (81%)
- Essay: 'Hopfield Networks and Boltzmann Machines' (81%). This mark was amongst the top in my cohort

Newcastle-under-Lyme School   2017 - 2019
- A-level: 4 A*s (Mathematics, Further Mathematics, Physics, Psychology)
- Top 1000 in UKMT Senior Mathematics Challenge (2018)

Endon High School   2012 - 2017
- GCSE: 10 A*s, 2 As (Self-taught in Further Mathematics – receiving an A* with Distinction)

Technical Experience

Research Experience in Neuroscience   2021 - 2023
- Worked under the supervision of Prof. Edmund Rolls of the Oxford Centre of Computational Neuroscience measuring effective connectivity in the human connectome. Connectivity matrices were derived from a `Hopf Algorithm' composed of noisy coupled oscillators which modelled the 360 cortical regions in the HCP multimodal parcellation atlas
- The Hopf algorithm has since been used to study the connectivity of brain areas ranging from the hippocampus to the anterior cingulate cortex. These areas are important for understanding memory formation and depression, respectively
- Contributions to the explanation and implementation of the Hopf algorithm led to acknowledgments in four papers published in Cerebral Cortex, one paper in Neuroimage, and one paper in Human Brain Mapping

Teaching and Speaking Experience

Best Paper Talk at the Hasso Platter Institute   2023
- Presented the "Best Paper Talk" and subsequent poster sessions at the International Conference on Automated Machine Learning to an audience with teams from Google, Meta, Amazon, and other prominent groups

Mathematics Graduate Teaching Assistant   2022 - 2023
- Responsibilities included marking the mathematics assignments of eight first-year students and conducting small group teaching sessions twice a week to provide feedback on the assignments

Young Leadership Roles and Debating   2015 - 2019
- Sole recipient of my school's award for Outstanding Spoken English – demonstrated through my role as deputy head boy and active participation in classical as well as Model United Nation debates across the UK

Additional Skills

Programming Languages: Python, MATLAB

Interests: Passion for philosophy, world music, and foreign affairs