Samuel Howard

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EDUCATION

PhD in Statistics, New College, University of Oxford   **2022-**
   – Member of the Modern Statistics and Statistical Machine Learning (StatML) CDT Programme

Master of Mathematics, New College, University of Oxford   **2018-2022**
   – Part C Results (Fourth Year Examinations): Distinction (3rd in Year Group, average score 86)
   – Part A and Part B Results (Second and Third Year Examinations): First Class
   – First Year Examination Results: Distinction

AWARDS

Junior Mathematical Prize, Oxford Mathematics Department   **2022**
   – Placed 3rd in cohort in Oxford Mathematics Part C Examinations

Boyer Prize, New College   **2020**
   – Best performance in Second Year Mathematics Examinations at New College, Oxford

Karen Thornton Memorial Prize, New College   **2019**
   – Best performance in First Year Mathematics Examinations at New College, Oxford

Head Boy, Senior School   **2017**
   – Elected by both peers and staff; organised events and demonstrated public speaking skills

IBM Prize, National Cipher Challenge   **2017**
   – Captain of the School National Cipher Challenge Team, achieving 1st place out of over 3,500 entries.

RESEARCH EXPERIENCE

StatML PhD Programme
Optimisation Methods for Computational Optimal Transport   **2023-**
   – Supervised by George Deligiannidis and Patrick Rebeschini.

Fourth Year Dissertation   **2022**
Best-of-Both-Worlds Bandits: An Introduction and Extension of the Tsallis-INF Algorithm
   – Supervised by Patrick Rebeschini.
   – Conducted a literature review of the Tsallis-INF algorithm, which achieves optimality in both stochastic and adversarial bandit structures.
   – Proved regret bounds for a novel extension of the algorithm to the case of Bandits with Paid Observations.
   – Empirically compared the novel algorithm to existing methods.

Oxford Mathematical Institute, Data Science Research Group – Summer Research Intern   **2021**
The Asymptotic Randomised Control Algorithm for Contextual Bandits
   – Undertook an 8-week research project supervised by Prof. Samuel Cohen and Dr Tanut Treetanthiploet.
   – Studied and implemented a novel algorithm for the multi-armed bandit problem, a classic reinforcement learning problem demonstrating the exploration-exploitation trade-off.
   – Conducted a literature review of the Asymptotic Randomised Control algorithm, adapted the algorithm to the case of contextual bandits, and implemented the result using Python in TensorFlow's TF-Agents library.
   – Compared performance against existing algorithms in a variety of standard and novel bandit structures. Results demonstrated improved performance for bandits with additional structure, while remaining competitive in standard cases.
   – Received prize for research presentation at the Oxford EPSRC Vacation Placement event.

INTERESTS

Tutor	Tutor in Statistics, Probability at New College, Oxford (First Year Mathematics courses).	2023-
	Tutor in Integration at New College, Oxford (Second Year Mathematics course).	2023-
Music	Achieved Grade 8 with Distinction on Classical Guitar and Double Bass.	2017, 2018
	Member of Oxford University Philharmonia.	2018-
	Member of the Hallé Youth Orchestra.	2017-2018
Other	Gold Duke of Edinburgh's Award.	2018
	Scout Leader: Volunteered at a local Scout Troop at weekly meetings and on camps.	2014-2018