Samuel Howard

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EDUCATION

DPhil in Statistics, New College, University of Oxford **2022-2026**
- 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
- 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**
- Performance 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 CDT First Mini-Project **2022**
High-Dimensional Online/Reinforcement Learning for Low-Dimensional Structures
- Supervised by Prof. Patrick Rebeschini and Dr Ciara Pike-Burke.

Fourth Year Dissertation **2022**
Best-of-Both-Worlds Bandits: An Introduction and Extension of the Tsallis-INF Algorithm
- Supervised by Prof. 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 and Data Analysis at New College, Oxford (First Year Mathematics course).	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-Present
	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