

Samuel Howard

samuelhoward.co.uk · linkedin.com/in/sam-howard1

EDUCATION

PhD in Statistics, University of Oxford

- Thesis Title: *Flow-based Machine Learning Approaches for Optimal Transport and Control* 2023-
- Supervised by George Deligiannidis and Patrick Rebeschini
- Member of the Modern Statistics and Statistical Machine Learning (StatML) CDT Programme 2022-

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: Placed 3rd in cohort in Oxford Mathematics Part C Examinations 2022

Boyer Prize, New College: Best performance in Second Year Mathematics Examinations 2020

Karen Thornton Memorial Prize, New College: Best performance in First Year Mathematics Examinations 2019

Head Boy, Stockport Grammar School: Elected by both peers and staff 2018

IBM Prize, National Cipher Challenge: Achieving 1st place out of over 3,500 entries. 2017

RESEARCH

Schrödinger Bridge Matching for Tree-Structured Costs and Entropic Wasserstein Barycentres, NeurIPS 2025

Samuel Howard*, Peter Potaptchik, George Deligiannidis

- Extends flow-based optimal transport approaches to solve for Wasserstein barycentres
- Provides an efficient fixed-point barycentre solver, using stable and scalable bridge matching objectives

Diffusion Models and the Manifold Hypothesis: Log-Domain Smoothing is Geometry Adaptive, NeurIPS 2025

Tyler Farghly*, Peter Potaptchik*, Samuel Howard*, George Deligiannidis, Jakiw Pidstrigach

- Examines how smoothing of the empirical score function influences diffusion model generalisation

Control Consistency Losses for Diffusion Bridges, Frontiers in Probabilistic Inference Workshop, NeurIPS 2025

Samuel Howard*, Nikolas Nüsken, Jakiw Pidstrigach

- Introduces a self-consistency objective for learning the conditioned dynamics of diffusion processes

Differentiable Cost-Parameterized Monge Map Estimators, Diff. Almost Everything Workshop, ICML 2024

Samuel Howard*, George Deligiannidis, Patrick Rebeschini, James Thornton

- Constructs a differentiable optimal transport map estimator, enabling gradient based training of a neurally-parameterized transport cost

Fourth Year Dissertation

2022

- Best-of-Both-Worlds Bandits: An Introduction and Extension of the Tsallis-INF Algorithm

Summer Research Intern: Oxford Mathematical Institute, Data Science Research Group

2021

- The Asymptotic Randomised Control Algorithm for Contextual Bandits

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. 2018-2024

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