Curtis McDonald

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Education

Yale University, New Haven, CT
Ph.D. in Statistics and Data Science
Expecting 2024
Prospective Thesis: "Sampling Methods for Multi-Modal Densities and Stochastic Optimization for Non-Convex Functions"

Queen's University, Kingston, ON
M.A.Sc
Conferred November 2019
Thesis: "Filter Stability, Observability and Robustness for Partially Observed Stochastic Dynamical Systems"

Queen's University, Kingston, ON
B.A.S in Applied Mathematics and Engineering,
Specialisation in Computing and Communications
Conferred June 2017
Thesis: "Decentralized Learning for Power Grid Control"

Publications

- McDonald, C., Barron, A. **" Proposal of a Score Based Approach to Sampling Using Monte Carlo Estimation of Score and Oracle Access to Target Density"**. NeurIPS 2022 Conference Workshop on Score Based Methods (Poster). (LINK HERE).
- McDonald, C., Yüksel, S. **"Robustness to incorrect priors and controlled filter stability in partially observed stochastic control"**. Siam Journal on Control and Optimization. vol 60, issue 22 . April 2022. (https://epubs.siam.org/doi/abs/10.1137/21M1417442)
- McDonald, C., Yüksel, S. **"Exponential filter stability via Dobrushin's coefficient"**. Electronic Communications in Probability. vol 20, no. 53. pp. 1-13. August 2020.
- McDonald, C., Alajaji, F., Yüksel, S. **"Two-Way Gaussian Networks with a Jammer and Decentralized Control"**. IEEE Transactions on Control of Network Systems. vol. 7, no. 1, pp. 446-457, March 2020.
- McDonald, C., Yüksel, S. (2019) **"Observability and Filter Stability for Partially Observed Markov Processes"**. 2019 IEEE 58th Conference on Decision and Control (CDC). pp. 1623-1628. (https://ieeexplore.ieee.org/document/9029775)

- McDonald, C., Yüksel, S. (2018) **"Stability of Non-Linear Filters, Observability and Relative Entropy"**. 2018 56th Annual Allerton Conference on Communication, Control, and Computing (Allerton). pp 110 - 114. (https://proceedings.allerton.csl.illinois.edu/2018/)
- McDonald, C., Alajaji, F., Yüksel, S. (2018) **"Two-Way Gaussian Channels with an Intelligent Jammer"**. 2018 Annual American Control Conference (ACC). pp. 1784- 1789. (https://ieeexplore.ieee.org/document/8430803)

Grants and Awards

NSERC Postgraduate Scholarships – Doctoral	Yale University	$63,000	2019-2021
Alexander G. Bell Canada Graduate Scholarship	Queen's University	$17,500	2018
Frank E. Smith Fellowship	Queen's University	$2,800	2018
Queen Elizabeth II Scholarship Science Technology	Queen's University	$15,000	2017
NSERC Undergraduate Summer Research Award	Queen's University	$4,500	2016-2017
Wm. Roy Hardick Scholarship	Queen's University	$2,900	2016
Marion and Arthur Wonnacott Scholarship	Queen's University	$1,100	2015
Les Gulko Award	Queen's University	$675	2015
Nelie and Ralph Jeffrey Award	Queen's University	$300	2015-2016
President's Scholarship	Queen's University	$8,000	2013-2014
Cenntenial Scholarship	State Farm Insurance	$20,000	2013-2016

Teaching Experience

Yale University, New Haven, CT
Teaching Assistant, 2020-Present
Led office hours and graded assignments for variety of statistics courses: e.g. linear models, stochastic processes, introductory machine learning. Advised on course content and adapted to on-line instruction during changes to course structure. Received numerous compliments from students and faculty advisor that my ability to explain complex concepts with simplicity was very beneficial to students' experience in the course.

Queen's University, Kingston, ON
Teaching Assistant, 2015-2019
Taught first year calculus and linear algebra, third year signal processing and analysis. Responsibilities included leading weekly tutorial sessions, advising on course content, and marking assignments. Nominated by students for TA excellence award 2018. Over a two week period in 2019 when the professor was ill, I gave lectures and guided most aspects of the 300 student calculus course.

Queen's University, Kingston, ON
Douglas Tutor, 2014-2017
Led biweekly review sessions for first year engineering students. Fielded questions on a wide range of topics and adapted to changing conditions in each session. Drew upon past experience to guide students through analytical thinking and problem solving techniques.