Blair Bilodeau

CONTACT INFORMATION

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DEGREES

In progress	Ph.D.	Statistical Sciences, University of Toronto
		Committee: Daniel Roy (Advisor), Nancy Reid, Ting-Kam Leonard Wong
2018	H.B.Sc.	Financial Modelling, University of Western Ontario

PROFESSIONAL AFFILIATIONS AND EMPLOYMENT

2022	Research Intern, Google Brain, Seattle, Washington
2022	Visiting Student, Simons Institute for the Theory of Computing, Berkeley, California
2020	Visiting Student, Insitute for Advanced Study, Princeton, New Jersey
2019–	Graduate Researcher, Vector Institute, Toronto, Ontario
2017–18	Undergraduate Researcher, University of Western Ontario, London, Ontario
2016	Risk Research Intern, London Life, London, Ontario
2015	Data Analyst Intern, Bell Canada, London, Ontario

RESEARCH GRANTS

2020–21	12,000 CAD	Vector Institute Research Grant
2020	6,000 CAD	NSERC Michael Smith Foreign Study Supplement
2019–22	105,000 CAD	NSERC Alexander Graham Bell Canada Graduate Scholarship – Doctoral
2018–19	17,500 CAD	NSERC Alexander Graham Bell Canada Graduate Scholarship – Master's
2018–19	15,000 CAD	Queen Elizabeth II Graduate Scholarship in Science and Technology (*Declined*)
2017–18	9,000 CAD	NSERC Undergraduate Student Research Awards

HONOURS AND AWARDS

2022	Centre for International Experience Award, University of Toronto
2021	Doctoral Early Research Excellence Award, Statistical Sciences, University of Toronto
2021	Hannan Graduate Student Travel Award, Institute of Mathematical Statistics
2020	Student Ambassador Award, Statistical Sciences, University of Toronto
2020	Best Poster Award, New York Academy of Sciences Machine Learning Symposium
2018	E. F. and F. W. Burton Graduate Scholarship, University of Toronto
2017	Robert and Ruth Lumsden Scholarship in Science, University of Western Ontario
2017	Borwein Memorial Prize, University of Western Ontario
2014–18	Continuing Admission Scholarship, University of Western Ontario

PUBLICATIONS AND PREPRINTS

*Shared first authorship

Density Estimation

1. **B. Bilodeau**, D. J. Foster, and D. M. Roy. (2021). Minimax Rates for Conditional Density Estimation via Empirical Entropy. **arXiv:2109.10461**.

2. **B. Bilodeau**, D. J. Foster, and D. M. Roy. (2020). Tight Bounds on Minimax Regret Under Logarithmic Loss via Self-Concordance. **International Conference on Machine Learning**.

Adaptive Sequential Decision Making

3. **B. Bilodeau**, L. Wang, and D. M. Roy. (2022). Adaptively Exploiting d-Separators with Causal Bandits. **arXiv:2202.05100**.

4. J. Negrea*, **B. Bilodeau***, N. Campolongo, F. Orabona, and D. M. Roy. (2021). Minimax Optimal Quantile and Semi-Adversarial Regret via Root-Logarithmic Regularizers. **Neural Information Processing Systems**.

5. **B. Bilodeau***, J. Negrea*, and D. M. Roy. (2020). Relaxing the I.I.D. Assumption: Adaptively Minimax Optimal Regret via Root-Entropic Regularization. **arXiv:2007.06552**.

Numerical Quadrature for Bayesian Inference

6. A. Stringer* and **B. Bilodeau***. (2022). Fitting Generalized Linear Mixed Models using Adaptive Quadrature. **In preparation (available on request)**.

7. **B. Bilodeau***, A. Stringer*, and Y. Tang*. (2021). Stochastic Convergence Rates and Applications of Adaptive Quadrature in Bayesian Inference. **arXiv:2102.06801**.

Queueing in Health Care

8. **B. Bilodeau** and D. A. Stanford. (2022). High-Priority Expected Waiting Times in the Delayed Accumulating Priority Queue with Applications to Health Care KPIs. **INFOR: Information Systems and Operational Research (to appear)**.

9. **B. Bilodeau**, D. A. Stanford, M. Goldszmidt, and A. Appleton. (2019). Simulated Co-location of Patients Admitted to an Inpatient Internal Medicine Teaching Unit: Potential Impacts on Efficiency and Physician-Nurse Collaboration. **INFOR: Information Systems and Operational Research**.

CONTRIBUTED AND INVITED TALKS/SEMINARS/COLLOQUIA/WORKSHOPS

An Introduction to Theoretical Statistics Research
July 2021   University of Toronto: Independent Summer Stats Community Talk Series **(Invited)**

Stochastic Convergence Rates and Applications of Adaptive Quadrature in Bayesian Inference
June 2021   International Society for Bayesian Analysis World Meeting: Oral Session

Minimax Rates for Conditional Density Estimation via Empirical Entropy
Aug 2021   American Statistical Association Joint Statistical Meetings: Speed Session
June 2021   Statistical Society of Canada Annual Meeting: Oral Session
Apr 2021   University of Toronto Statistical Sciences Research Day: Oral Session

Relaxing the I.I.D. Assumption: Adaptively Minimax Optimal Regret via Root-Entropic Regularization
Dec 2021   NeurIPS Workshop on Robustness and Misspecification in Prob. Modeling **(Peer-Reviewed)**
Apr 2021   DeepMind: Foundations Reading Group **(Invited)**
Mar 2021   University of California, Los Angeles: Computer Science Seminar **(Invited)**
Mar 2021   Massachusetts Institute of Technology: Stochastics and Statistics Seminar **(Invited)**
Feb 2021   RIKEN Center for Advanced Intelligence Project: Public Seminar **(Invited)**

Tight Bounds on Minimax Regret under Logarithmic Loss via Self-Concordance
Aug 2020   American Statistical Association Joint Statistical Meetings: Poster Session
Mar 2020   New York Academy of Sciences Machine Learning Symposium: Poster Session
Mar 2020   Institute for Advanced Study: Special Year Student Seminar **(Invited)**

Scraping Papers from arXiv and biorXiv using Python
May 2020   Canadian Statistics Student Conference: Scientific Workshop **(Invited)**

High-Priority Expected Waiting Times in the Delayed Accumulating Priority Queue
  Aug 2019   Canadian Queueing Conference: Oral Session
  June 2019   Southwestern Ontario Graduate Math and Stats Conference: Oral Session
  May 2019   Canadian Operational Research Society Annual Meeting: Oral Session

Simulated Co-location of Patients Admitted to an Inpatient Internal Medicine Teaching Unit
  Aug 2018   Canadian Queueing Conference: Oral Session
  July 2018   Operational Research Applied to Health Services Annual Meeting: Oral Session

TEACHING   UTSG = University of Toronto, St. George

Course Instructor
  2021 S   UTSG STA347 Probability Theory
  2020 S   UTSG STA347 Probability Theory

Head Teaching Assistant
  2019 F   UTSG STA442 Methods of Applied Statistics
  2019 S   UTSG STA261 Probability and Statistics II

Teaching Assistant
  2021 F   UTSG STA347 Probability Theory
  2021 F   UTSG STA257 Probability and Statistics I
  2021 W   UTSG STA238 Probability, Statistics, and Data Analysis II
  2020 F   UTSG STA347 Probability Theory
  2020 F   UTSG STA257 Probability and Statistics I
  2019 F   UTSG STA257 Probability and Statistics I
  2019 W   UTSG STA457 Time Series Analysis
  2019 W   UTSG STA355 Theory of Statistical Practice
  2018 F   UTSG STA347 Probability Theory
  2018 F   UTSG ACT230 Mathematics of Finance for Non-Actuaries

SERVICE

Journal Referee
  Journal of Machine Learning Research, Machine Learning

Conference Referee
  ALT 2021, AISTATS 2022, ICLR 2022, COLT 2022, ICML 2022

Workshop Referee
  NeurIPS 2021

Administrative Positions
  2022   Research Day Planning Committee, University of Toronto Statistical Sciences
  2019–21   Treasurer, Statistics Graduate Student Association, University of Toronto