

Blair Bilodeau

CONTACT INFORMATION

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DEGREES

2023 (*Exp.*) 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 Student, 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

2022 1,000 CAD School of Graduate Studies Conference Travel Grant
2022 8,000 CAD Centre for International Experience Award+
2021 750 USD Institute of Mathematical Statistics Hannan Graduate Student Travel Award
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 AISTATS Top 10% Reviewer Award
2021 Dept. of Statistical Sciences Doctoral Early Research Excellence Award
2020 Dept. of Statistical Sciences Student Ambassador Award
2020 New York Academy of Sciences Machine Learning Symposium Best Poster Award
2018 E. F. and F. W. Burton Graduate Scholarship
2017 Robert and Ruth Lumsden Scholarship in Science
2017 Borwein Memorial Prize
2014–18 University of Western Ontario Continuing Admission Scholarship

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**.

Quadrature for Statistical Inference

6. A. Stringer* and **B. Bilodeau***. (2022). Fitting Generalized Linear Mixed Models using Adaptive Quadrature. **arXiv:2202.07864**.
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**.
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**.

ADDITIONAL SCHOLARLY WORK

B. Bilodeau. (2022). Blair Bilodeau’s Contribution to the Discussion of ‘Assumption-Lean Inference for Generalised Linear Model Parameters’ by Vansteelandt and Dukes. **Journal of the Royal Statistical Society: Series B**.

CONTRIBUTED AND INVITED TALKS/SEMINARS/COLLOQUIA/WORKSHOPS

Adaptive Statistical Decision Making

- Dec 2022 International Conference on Computational and Methodological Statistics (**Invited**)
- June 2022 University of Toronto: Undergraduate Research Opportunity Program Weekly Seminar (**Invited**)

Adaptively Exploiting d -Separators with Causal Bandits

- June 2022 Statistical Society of Canada Annual Meeting: Oral Session
- May 2022 University of Toronto Statistical Sciences Research Day: Oral Session
- May 2022 Simons Institute for the Theory of Computing: Statistical Theory Reading Group
- Mar 2022 Carnegie Mellon University: Zachary Lipton Lab Meeting (**Invited**)

Minimax Rates for Conditional Density Estimation via Empirical Entropy

- June 2022 Institute of Mathematical Statistics Annual Meeting: Oral Session
- 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

- Feb 2022 Simons Institute for the Theory of Computing: Learning with Strategic Behaviour Reading Group
- 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**)

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

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

Course Instructor

Probability Theory (2020, 2021)

Head Teaching Assistant

Methods of Applied Statistics (2019)

Probability and Statistics II (2019)

Teaching Assistant

Probability Theory (2018, 2020, 2021)

Probability, Statistics, and Data Analysis II (2021)

Probability and Statistics I (2019, 2020, 2021)

Theory of Statistical Practice (2019)

Time Series Analysis (2019)

Mathematics of Finance for Non-Actuaries (2018)

SERVICE

Journal Referee

Journal of Machine Learning Research, Machine Learning

Conference Referee

AISTATS (2022), ALT (2021), COLT (2022), ICLR (2022), ICML (2022), NeurIPS (2022)

Workshop Referee

NeurIPS (2021)

Administrative Positions

2022 Statistical Sciences Research Day Planning Committee, University of Toronto

2019–21 Treasurer, Statistics Graduate Student Association, University of Toronto