

# Blair Bilodeau

## CONTACT INFORMATION

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## DEGREES

|                    |         |  |
|--------------------|---------|--|
| <i>In progress</i> | Ph.D.   | Statistical Sciences, University of Toronto<br>Advisor: Daniel Roy<br>Committee: Nancy Reid, Ting-Kam Leonard Wong |
| 2018               | H.B.Sc. | Financial Modelling, Western University  |

## PROFESSIONAL AFFILIATIONS AND EMPLOYMENT

|         |  |
|---------|--|
| 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, Western University, 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 ( <i>Declined</i> ) |
| 2017-18 | 9,000 CAD   | NSERC Undergraduate Student Research Awards   |

## HONOURS AND AWARDS

|         |   |
|---------|---|
| 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, Western University                    |
| 2017    | Borwein Memorial Prize, Western University  |
| 2014–18 | Continuing Admission Scholarship, Western University                                  |

## REFEREED PUBLICATIONS

\*Shared first authorship

1. 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*.
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*.
3. **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*.

PREPRINTS

4. **B. Bilodeau**, D. J. Foster, and D. M. Roy. (2021). Minimax Rates for Conditional Density Estimation via Empirical Entropy. *arXiv:2109.10461*.
5. **B. Bilodeau\***, A. Stringer\*, and Y. Tang\*. (2021). Stochastic Convergence Rates and Applications of Adaptive Quadrature in Bayesian Inference. *arXiv:2102.06801*.
6. **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*.
7. **B. Bilodeau** and D. A. Stanford. (2020). High-Priority Expected Waiting Times in the Delayed Accumulating Priority Queue with Applications to Health Care KPIs. *arXiv:2001.06054*.

PRESENTATIONS (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

Workshop Referee

NeurIPS 2021

Administrative Positions

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