# Blair Bilodeau

## CONTACT INFORMATION

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| Phone | +1 (519) 871– 4811 |

## DEGREES

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|---|---|---|
| 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

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|---|---|
| 2022 | Rising Star, University of Chicago Data Science Institute, Chicago, Illinois |
| 2022 | Research Intern, Google Brain, Seattle, Washington |
| 2022 | Visiting Student, Simons Institute for the Theory of Computing, Berkeley, California |
| 2020 | Visiting Student, Institute 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

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|---|---|---|
| 2022 | 1,800 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 |
| 2020–22 | 18,000 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

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|---|---|
| 2022 | NeurIPS Scholar Award |
| 2022 | NeurIPS Top Reviewer Award |
| 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

*Shared first authorship; [(A)] Alphabetical

1. [(A)]**B. Bilodeau**, A. Stringer, Y. Tang. (2022). Stochastic Convergence Rates and Applications of Adaptive Quadrature in Bayesian Inference. **Journal of the American Statistical Association**.

2. **B. Bilodeau**, L. Wang, D. M. Roy. (2022). Adaptively Exploiting $d$-Separators with Causal Bandits. **Neural Information Processing Systems (Oral)**.

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

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

5. **B. Bilodeau**, 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**.

6. **B. Bilodeau**, D. A. Stanford, M. Goldszmidt, 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

1. **B. Bilodeau**, N. Jaques, P. W. Koh, B. Kim. (2022). Impossibility Theorems for Feature Attribution. **arXiv:2212.11870**.

2. **B. Bilodeau**, Y. Tang, A. Stringer. (2022). On the Tightness of the Laplace Approximation for Statistical Inference. **arXiv:2210.09442**.

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

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

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

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 Sequential Decision Making and Uncertainty Quantification*

| | | |
|---|---|---|
| Jan | 2023 | McGill University: Mathematics and Statistics Seminar **(Invited)** |
| Jan | 2023 | Simon Fraser University: Statistics and Actuarial Science Seminar **(Invited)** |
| Jan | 2023 | University of Alberta: Mathematical and Statistical Sciences Seminar **(Invited)** |
| Jan | 2023 | University of Michigan: Statistics Seminar **(Invited)** |
| Jan | 2023 | University of Waterloo: Statistics and Actuarial Science Seminar **(Invited)** |

*Adaptively Exploiting $d$-Separators with Causal Bandits*

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|---|---|---|
| Dec | 2022 | International Conference on Computational and Methodological Statistics **(Invited)** |
| Nov | 2022 | University of Chicago Rising Stars in Data Science Workshop |
| 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*
  Sep   2022    CREST–CMAP Weekly Seminar **(Invited)**
  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*
  June 2022    University of Toronto: Undergraduate Research Opportunity Program Weekly Seminar **(Invited)**
  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

*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
  STA347: Probability Theory (2020, 2021)

Teaching Assistant
  STA238: Probability, Statistics, and Data Analysis II (2021)
  STA257: Probability and Statistics I (2019, 2020, 2021)
  STA347: Probability Theory (2018, 2020, 2021)
  STA442: Methods of Applied Statistics (2019)
  STA261: Probability and Statistics II (2019)
  STA355: Theory of Statistical Practice (2019)
  STA457: Time Series Analysis (2019)
  ACT230: Mathematics of Finance for Non-Actuaries (2018)

OTHER ACADEMIC ACTIVITIES

Journal Referee
  IEEE Trans. on Information Theory, Journal of Machine Learning Research, Machine Learning

Conference and Workshop Referee
  AISTATS ('22, '23), ALT ('21, '23), COLT ('22), ICLR ('22), ICML ('22, '23), NeurIPS ('21, '22),
  UAI ('23)

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