

Jeffrey Negrea

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Degrees

Ph.D. Statistical Sciences (2022 expected), University of Toronto

M.Sc. Statistical Sciences (2017), University of Toronto

B.Math. (2014), University of Waterloo

Major in Mathematical Finance with Honours
Minors in Pure Mathematics and Actuarial Science

Grants and Fellowships

Vanier Canada Graduate Scholarship	\$150,000 (CAD)	2018–2021
Vector Institute Research Grant	\$18,000 (CAD)	2019–2021
Statistical Society of Canada Student Travel Grant	\$100 (CAD)	2021
NSERC Michael Smith Foreign Study Study Supplement	\$6,000 (CAD)	2020
NeurIPS Student Travel Grant	\$500 (USD)	2019
School of Graduate Studies Conference Grant	\$800 (CAD)	2019
NSERC PGS-D (Declined)	\$63,000 (CAD)	2018–2021
Ontario Graduate Scholarship	\$15,000 (CAD)	2017–2018
University of Toronto Fellowships	\$35,500 (CAD)	2016–2021
University of Waterloo Merit Scholarship	\$1,000 (CAD)	2009–2010

Awards and Honours

Departmental Doctoral Award for Excellence in Research	2021
Best Contributed Poster (Probability Section) SSC Annual Meeting	2019
Departmental Teaching Assistant Award	2018
David F. Andrews Academic Achievement Award (Departmental, Masters)	2017

Publications

*: Shared first authorship

1. J. Negrea*, B. Bilodeau*, N. Campolongo, F. Orabona, and D. M. Roy. “Minimax Optimal Quantile and Semi-Adversarial Regret via Root-Logarithmic Regularizers”. In: *Advances in Neural Information Processing Systems*. 31 pages. 2021. URL: <https://arxiv.org/abs/2110.14804>
2. J. Negrea and J. S. Rosenthal. “Approximations of Geometrically Ergodic Reversible Markov Chains”. *Advances in Applied Probability* (2021). 43 pages. URL: <https://arxiv.org/abs/1702.07441>. Forthcoming
3. M. Haghifam, J. Negrea, A. Khisti, D. M. Roy, and G. K. Dziugaite. “Sharpened Generalization Bounds based on Conditional Mutual Information and an Application to Noisy, Iterative Algorithms”. In: *Advances in Neural Information Processing Systems*. 23 pages. 2020. URL: <https://proceedings.neurips.cc/paper/2019/hash/05ae14d7ae387b93370d142d82220f1b-Abstract.html>
4. J. Negrea, G. K. Dziugaite, and D. M. Roy. “In Defense of Uniform Convergence: Generalization via derandomization with an application to interpolating predictors”. In: *Proceedings of the 37th International Conference on Machine Learning*. 26 pages. 2020. URL: <http://proceedings.mlr.press/v119/negrea20a>

5. J. Negrea*, M. Haghifam*, G. K. Dziugaite, A. Khisti, and D. M. Roy. “Information-Theoretic Generalization Bounds for SGLD via Data-Dependent Estimates”. In: *Advances in Neural Information Processing Systems*. 23 pages. 2019. URL: <https://papers.nips.cc/paper/2019/hash/05ae14d7ae387b93370d142d82220f1b-Abstract.html>

Preprints

*: Shared first authorship

1. J. Negrea, J. Yang, H. Feng, D. M. Roy, and J. H. Huggins. *Statistical Inference with Stochastic Gradient Algorithms*. 2021. URL: <http://utstat.toronto.edu/~negrea/publication/negrea-2021-statistical/>
2. B. Bilodeau*, J. Negrea*, and D. M. Roy. *Relaxing the I.I.D. Assumption: Adaptively Minimax Optimal Regret via Root-Entropic Regularization*. 71 pages. 2020. arXiv: 2007.06552. URL: <https://arxiv.org/abs/2007.06552>
3. J. Negrea. *Optimal Scaling and Shaping of Random Walk Metropolis via Diffusion Limits of Block-IID Targets*. 29 pages. 2019. arXiv: 1902.06603. URL: <https://arxiv.org/abs/1902.06603>

Refereed Workshop Presentations

1. B. Bilodeau, J. Negrea, and D. M. Roy. *Relaxing the I.I.D. Assumption: Adaptively Minimax Optimal Regret via Root-Entropic Regularization*. Poster Presentation. Neural Information Processing Systems 35, Your Model is Wrong: Robustness and misspecification in probabilistic modelling. Online, 2021
2. G. K. Dziugaite, M. Haghifam, A. Khisti, J. Negrea, and D. M. Roy. *Data-Dependent Mutual Information Bounds for SGLD*. Poster Presentation. International Conference on Machine Learning, Workshop in Understanding and Improving Generalization in Deep Learning. Long Beach, CA, 2019

Contributed Presentations Without Proceedings

1. J. Negrea. *Relaxing the I.I.D. Assumption: Adaptively Minimax Optimal Regret via Root-Entropic Regularization*. Statistical Society of Canada Annual Meeting. Online, 2021
2. J. Negrea. *Optimal Scaling and Shaping of Random Walk Metropolis via Diffusion Limits of Block-I.I.D. Targets*. Poster Presentation. Statistical Society of Canada Annual Meeting. Calgary, AB, 2019

Professional Affiliations and Activities

Visiting student, Simons Institute, Berkeley, CA, 2022
Learning and Games

Rising Star, University of Chicago Data Science Institute, Chicago, IL 2021
Rising Stars in Data Science Workshop

Visiting student, Institute for Advanced Study, Princeton, NJ, 2020
Special Year on Optimization, Statistics, and Machine Learning

Graduate Student Researcher, Vector Institute, Toronto, ON, 2019–2022

Conference Reviewer, COLT (2022), ISIT (2021), ICML (2021), NeurIPS (2018–2020), NeurIPS Bayesian Deep Learning Workshop (2017).

Referee, Statistics & Computing (STCO, 2021), Machine Learning (MACH, 2021), Journal of Artificial Intelligence Research (JAIR, 2020), Canadian Journal of Statistics (CJS, 2019), Journal of Statistics Education (JSE, 2019)

Invited Talks

Relaxing the I.I.D. Assumption: Adaptively Minimax Optimal Regret via Root-Entropic Regularization.

1. University of Chicago Data Science Institute, Rising Stars in Data Science Workshop, November 2021, Chicago
2. DeepMind, Foundations Reading Group, April 2021, London, (online)
3. University College London, AI Centre Seminar Series, March 2021, London, (online)
4. RIKEN Center for Advanced Intelligence Project, Approximate Bayesian Inference Weekly Seminar, February 2021, Tokyo, (online)
5. Institute for Advanced Study, Special Year on Optimization, Statistics, and Theoretical Machine Learning Seminar Series, July 2020, Princeton, (online)

In Defense of Uniform Convergence: Generalization via derandomization with an application to interpolating predictors.

6. University of British Columbia, Centre for Artificial Intelligence Decision-making and Action Seminar Series, October 2020, Vancouver, (online)
7. University of Chicago Booth School of Business, Department of Statistics and Econometrics Colloquium, October 2020, Chicago, (online)

Teaching

Instructor	STA248	Statistics for Computer Scientists	2017
	STA303/1002	Methods of Data Analysis II	2017
Teaching Assistant	STA410/2102	Computational Statistics	2022
	STA347	Probability	2021
	STA490	Statistical Consultation ...	2017–2020
	STA465	Methods for Complex Spatial Data	2019–2020
	STAB52H3	Introduction to Probability	2019
	STA2111	Graduate Probability I	2019
	STA453/2212	Mathematical Statistics II	2019
	STA452/2112	Mathematical Statistics I	2018
	STA220	Practice of Statistics I	2016–2017
	STA255	Statistical Theory	2017
	ACT455	Advanced Topics in Actuarial Science	2017
ACT348	Advanced Life Contingencies	2016	

Other Professional Experience

Senior Analyst, Model Development, TD Bank Group 2015–2016