

Anthony Coache | CV

Saint-Jean-sur-Richelieu, Québec – Toronto, Ontario

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Education

University of Toronto (UofT)

2019 – ... *Ph.D., Statistics (3.95/4.00)*

University of Oxford

2022 *Visiting student, 6 months, invitation from Prof. Álvaro Cartea, Oxford-Man Institute*

Université du Québec à Montréal (UQAM)

2017 – 2019 *M.Sc., Statistics (4.30/4.30)*

2014 – 2017 *B.Sc. with Honours, Mathematics concentration Statistics (4.18/4.30)*

Scholarships & Awards

2023 **SIAM** Student Travel Award (900 USD)

2022 **Oxford-Man Institute** Visitors Programme (9 000 GBP)

2022 **UofT School of Graduate Studies** Conference Travel Grant (900 CAD)

2019 – 2022 **NSERC**¹ Alexander Graham Bell Doctoral's Award (105 000 CAD)

2019 – 2023 **FRQNT**² Doctoral Scholarship (84 000 CAD)

2019 – 2023 **Faculty of Arts&Science of UofT** Top Doctoral Fellowship (95 000 CAD, declined)

2017 – 2018 **NSERC** Alexander Graham Bell Master's Award (17 500 CAD)

2017 – 2019 **FRQNT** Master's Award (30 000 CAD)

2016 – 2017 **NSERC** Undergraduate Research Awards + **FRQNT** Supplements (2 × 7 125 CAD)

2014 **UQAM Foundation** Admission Scholarship of the Faculty of Sciences (2 000 CAD)

Work Experience

2020 – ... Teaching Assistant at UofT

Data Science for Risk Modeling (STA2536), Data Analytics in Practice (STA2546), Stochastic Processes (STA447/STA2006), Dependence Modelling (STA4528), Statistical Consultation, Communication and Collaboration (STA490)

Project meetings, individual mentoring, grading assignments and weekly exercises tutorials.

2020 Research Assistant with Prof. Sebastian Jaimungal

Hidden trends in order-flow trading data and hedging with dynamic barriers

Collaboration between Oanda and Fields-CQAM.

2016 – 2019 Teaching Assistant at UQAM

Statistical Software Laboratory (STT2100), Regression (STT2120), ANOVA for Biology (MAT1285), Statistical Methods for the School of Management (MAT2080)

2016 & 2017 Research Internship with Prof. François Watier and Prof. René Ferland

Stochastic optimization in multi-period problems with convex risk measures, Monte Carlo evaluation of sensitivities for risk measures

April 2017 Research Internship with Prof. Sorana Froda and Prof. René Ferland

Estimation of parameters from surveillance data on past epidemics

2017 – 2019 Mathematics Tutor

Weekly individual tutoring for Quantitative Analysis in Psychology (PSY4031)

¹Natural Sciences and Engineering Research Council of Canada

²Fonds de recherche du Québec – Nature et technologies

Publications

Papers

- **Coache, A.**, Jaimungal, S. & Cartea, Á. (2022) Conditionally Elicitable Dynamic Risk Measures for Deep Reinforcement Learning. *Under review, minor revisions at SIFIN.*
- **Coache, A.** & Jaimungal, S. (2021) Reinforcement Learning with Dynamic Convex Risk Measures. *Mathematical Finance, accepted.*

In progress

- **Coache, A.** & Jaimungal, S. (TBD) Robust Reinforcement Learning with Dynamic Risk Measures.
- Cheng, Z., Jaimungal, S., & **Coache, A.** (TBD) Learning Risk Aversion with Inverse Reinforcement Learning.

Posters

- Binette, O. & **Coache, A.** (2018) The Significance of the Adjusted R Squared. *(Bio)Stats Research Day.*
- **Coache, A.** & Larose, F. (2018) "Do schools kill creativity?" Well, they help analyze popularity! *Annual Meeting of the SSC.*
- Ferland, R., Froda, S. & **Coache, A.** (2017) Comparison of surveillance flu data across regions. *Annual Meeting of the SSC.*

Talks

Invited

- *SIAM Conference on Financial Mathematics and Engineering.* (2023) Robust Reinforcement Learning for Dynamic Risk Measures.
- *SIAM Conference on Financial Mathematics and Engineering.* (2023) Conditionally Elicitable Dynamic Risk Measures for Deep Reinforcement Learning.
- *INFORMS Annual Meeting.* (2022) Reinforcement Learning with Dynamic Risk Measures.
- *World Congress of the Bachelier Finance Society.* (2022) RL for Dynamic Risk Measures.
- *Oxford-Man Institute Workshop.* (2022) Optimising a Dynamic Conditional Value-at-Risk over Policies using Conditional Elicitability.
- *SIAM Conference on Financial Maths and Engineering.* (2021) RL with Dynamic Convex Risk Measures.

Contributed

- *Graduate Student Research Day.* (2023) An Introduction to Risk-Aware RL with Dynamic Risk Measures.
- *Research Topics in Statistical Machine Learning.* (2021) Distilling Policy Distillation.
- *ACTSCI / MAFI Research meeting.* (2021) Risk-Sensitive Optimization in Reinforcement Learning.
- *Annual Meeting of the SSC.* (2019) Stochastic Algorithms for Solving a Multiperiod Quantile-Based Portfolio Optimization Problem.
- *UQAM Prob/Stats Student Seminar.* (2017) Non-Parametric Estimation of the Quantile Function.

Leadership

- Reviewed papers: Quantitative Finance (2022), International Conference on AI in Finance (2021 – 2022).
- Ran: Matlab (2021 & 2022) and Python (2022) bootcamps for MFI students at UofT.
- Co-organized: the Canadian Statistics Student Conference (2020 & 2021), first Statistics Student Summit in Montréal (2019), orientation activities for new undergraduate students in Statistics (2016 – 2019).
- Volunteered for: ML and Quantitative Finance Workshop (2022), Conference on NLP for Economic and Financial Modelling (2022), R in Montréal (2018), UQAM Prob/Stats Student Seminar (2016 – 2017).
- Contributed on: a professional development guide aimed at UQAM's Math & Stats majors (2019).

Skills

Research Interests: Reinforcement Learning (RL), Risk Sensitivity, Stochastic Modeling, Computer Science, Risk Measures, Optimization, Applied Statistics, Statistical Learning.

Programming: Strong knowledge of R, Python, Matlab, TeX. Knowledge of C/C++, SAS, Java, SQL.

Multitasking: Experience carrying out several projects in parallel from start to finish.

Versatility: Works on multiple interdisciplinary projects, particular ease in creative work and fast learning.