Christiane Lemieux

Department of Statistics and Actuarial Science   clemieux@uwaterloo.ca
University of Waterloo   www.math.uwaterloo.ca/~clemieux
Born in Quebec City, Canadian Citizen   Fully fluent in French (native) and English
Married, three children (born 2003, 2005, 2009)

Current Position

Professor, Department of Statistics and Actuarial Science, University of Waterloo, July 2017 – present.

Previous Positions

Associate Professor, Department of Statistics and Actuarial Science, University of Waterloo, July 2006 – June 2017.

Associate Professor, Department of Mathematics and Statistics and Department of Computer Science, University of Calgary, July 2005 – June 2006.

Assistant Professor, Department of Mathematics and Statistics and Department of Computer Science, University of Calgary, July 2000 – June 2005.

Postdoctoral Scholar, Department of Statistics, Stanford University, January 2000 – June 2000.

Education

Ph.D. (Computer Science), Université de Montréal, May 2000.

M.Sc. (Mathematics), Université de Montréal, September 1996.

B.Sc. (Actuarial Science), Université Laval, May 1994.

Prizes and Awards

Outstanding Performance Award, University of Waterloo, 2012, 2018 & 2022
Co-winner of the 2004 "Journal of Complexity IBC Young Researcher Award"

Membership in Professional Societies

Associate of the *Society of Actuaries* (since Nov. 1993)

Research Interests

Quasi-Monte Carlo methods, low-discrepancy sequences, variance reduction techniques, dependence, copulas, sampling algorithms

Books

1. Z. Botev, A. Keller, C. Lemieux, B. Tuffin (eds). Advances in Modeling and Simulation: Festschrift for Pierre L'Ecuyer. Springer, 2022. (420 pages)

2. C. Lemieux. Monte Carlo and Quasi-Monte Carlo Sampling. Springer Series in Statistics. Springer, New York, 2009. (373 pages)

Book chapters

3. E. Hintz*, M. Hofert and C. Lemieux. Quasi-random sampling with black-box or acceptance-rejection inputs. In Advances in Modeling and Simulation, Botev et al (eds), Springer, 261-281, 2022.

4. P. Arbenz, M. Cambou, M. Hofert, C. Lemieux, Y. Taniguchi*. Importance sampling and stratification for copula models. In Contemporary Computational Mathematics - a celebration of the 80th birthday of Ian Sloan, J. Dick, F. Y. Kuo, H. Woźniakowski, eds., Springer-Verlag, 75–96, 2018.

5. C. Lemieux. Quasi-random number techniques. *Handbook in Operations Research and Management Science*, vol. 13 (Simulation), S. Henderson and B. Nelson, eds., Elsevier, 351–379, 2006.

6. P. L'Ecuyer and C. Lemieux. Recent advances in randomized quasi-Monte Carlo methods. In *Modeling Uncertainty: An Examination of Stochastic Theory, Methods, and Applications*, M. Dror, P. L'Ecuyer, and F. Szidarovszki, eds., Kluwer Academic, 419–474, 2002.

Refereed Journal Papers

7. N. Kirk, C. Lemieux and J. Wiart. Golden ratio nets and sequences.*Functiones and Approximatio*, vol. 73, no. 1, 97–141, 2025.

8. T.K. Rusch, N. Kirk, M.M. Bronstein, C. Lemieux, D. Rus. Message-Passing Monte Carlo: Generating low-discrepancy point sets via Graph Neural Networks. *Proceedings of the National Academy of Sciences*, vol. 121, no. 40, 2024.

9. A. Wigle*, A. Beliveau, D. Blackmore, P. Lapeyre, K. Osadetz, C. Lemieux, K. Daun. Estimation and Applications of Uncertainty in Methane Emissions Quantification Technologies: A Bayesian Approach. *ACS ES&T Air*, Vol. 1, Issue 9, 2024.

10. G.Y. Dong*, E. Hintz*. M. Hofert and C. Lemieux. Randomized quasi-Monte Carlo methods on triangles: Extensible lattices and sequences. *Methodology in Computing and Applied Probability*, vol. 26, Issue 2, Article 15, 2024.

11. G.Y. Dong* and C. Lemieux. Dependence properties of scrambled Halton sequences. *Mathematics and Computers in Simulation*, 200, 240–262, 2022

Supervised students are marked with a * in the authorship

12. E. Hintz*, M. Hofert, C. Lemieux, and Y. Taniguchi. Single-index importance sampling with stratification. *Methodology and Computing in Applied Probability*, 24, 3049–3073, 2022.

13. E. Hintz*, M. Hofert and C. Lemieux. Computational challenges of t and related copulas. *Journal of Data Science*, 20(1), 95-110, 2022.

14. E. Hintz*, M. Hofert and C. Lemieux. Multivariate normal variance mixtures in R: The R package nvmix. *Journal of Statistical Software*, 102(2), 2022.

15. J. Wiart, C. Lemieux, G.Y. Dong*. On the dependence structure and quality of scrambled $(t, m, s)-$nets. *Monte Carlo Methods and Applications*, 27, 1-26, 2021.

16. E. Hintz*, M. Hofert, C. Lemieux. Normal variance mixtures: Distribution, density and parameter estimation. *Computational Statistics and Data Analysis*, 175C, 107175, 2021.

17. E. Hintz*, M. Hofert and C. Lemieux. Grouped normal variance mixtures. *Risks*, 8(4), 103, 1–26, 2020.

18. J. Cai, C. Lemieux, F. Liu* and R. Wang. Convex risk functionals: representation and applications. *Insurance: Mathematics and Economics*, 90, 67–79, 2020.

19. H. Faure and C. Lemieux. Implementation of irreducible Sobol' sequences in prime power bases. *Mathematics and Computers in Simulation*, 161, 13–22, 2019.

20. C. Lemieux. Negative dependence, scrambled nets, and variance bounds. *Mathematics of Operations Research*, (published online on September 5, 2017), 43 (1), 228–251, 2018.

21. H. Faure and C. Lemieux. Low-discrepancy sequences: Atanassov's methods revisited. *Mathematics and Computers in Simulation*, 132, 236–256, 2017

22. M. Cambou, M. Hofert and C. Lemieux. Quasi-random numbers for copula models. *Statistics and Computing*, 27 (5), pp.1307–1329, 2017

23. H. Faure and C. Lemieux. A review of discrepancy bounds for (t, s) and $(t, \mathbf{e}, s)$-sequences with numerical comparisons, *Mathematics and Computers in Simulation*, 135(C), 63–71, 2017.

24. H. Faure and C. Lemieux. Irreducible Sobol' sequences in prime power bases. *Acta Arithmetica*, 173, 59–80, 2016.

25. J. Cai, C. Lemieux and F. Liu*. Optimal reinsurance from the perspective of both an insurer and a reinsurer. *ASTIN Bulletin*, 46, 815–849, 2016.

26. S. Li*, D. Landriault and C. Lemieux. A risk model with varying premiums: its risk management implications. *Insurance: Mathematics and Economics*, 60, 38–46, 2015.

27. C. Lemieux. Tractability using periodized generalized Faure Sequences. *Journal of Complexity*, 31, 42–56, 2015.

28. J. Cai, C. Lemieux and F. Liu*. Optimal reinsurance with regulatory capital and default risk. *Insurance: Mathematics and Economics*, 57, 13–24, 2014.

29. H. Faure and C. Lemieux. A variant of Atanassov's methods for (t, s)-sequences and $(t, \mathbf{e}, s)$-sequences. *Journal of Complexity*, 30, 620–633, 2014.

30. H. Faure and C. Lemieux. Improvements on the star discrepancy of (t, s)-sequences. *Acta Arithmetica*, 154, 61–78, 2012.

31. D. Landriault, C. Lemieux and G. E. Willmot. An adaptive premium policy with a Bayesian motivation in the classical risk model. *Insurance: Mathematics and Economics*, 51, 370–378, 2012.

32. H. Faure and C. Lemieux. Improved Halton sequences and discrepancy bounds. *Monte Carlo Methods and Applications*, 2010.

33. H. Faure and C. Lemieux. Generalized Halton Sequences in 2008: A Comparative Study. *ACM Transactions on Modeling and Computer Simulation*, 19 (Article 15), 2009.

34. M. Cieslak*, C. Lemieux, J. Hanan and P. Prusinkiewicz. Quasi-Monte Carlo Simulation of the Light Environment for Plants. *Functional Plant Biology*, 35, 837-849, 2008.

35. H. S. Gill* and C. Lemieux. Searching for extensible Korobov rules. *Journal of Complexity*, 23, 603–613, 2007.

36. R. V. Craiu and C. Lemieux. Acceleration of the Multiple-Try Metropolis algorithm using antithetic and stratified sampling. *Statistics and Computing*, 17, 109-120, 2007

37. C. Lemieux and P. Sidorsky*. Exact sampling with highly-uniform point sets. *Mathematical and Computer Modelling*, 43, 339–349, 2006.

38. F. J. Hickernell, C. Lemieux and A. B. Owen. Control variates for quasi-Monte Carlo. *Statistical Science*, 20, 1–31, 2005.

39. H. Ben Ameur, P. L'Ecuyer and C. Lemieux. Combinations of general antithetic transformations and control variables. *Mathematics of Operations Research*, 29, 946–960, 2004.

40. C. Lemieux and P. L'Ecuyer. Randomized polynomial lattice rules for multivariate integration and simulation, *SIAM Journal on Scientific Computing*, 24, 1768–1789, 2003.

41. F. J. Hickernell, H. S. Hong, P. L'Ecuyer and C. Lemieux. Extensible lattice sequences for quasi-Monte Carlo quadrature. *SIAM Journal on Scientific Computing*, 22, 1117–1138, 2001.

42. C. Lemieux and P. L'Ecuyer. On selection criteria for lattice rules and other quasi-Monte Carlo point sets. *Mathematics and Computers in Simulation*, 55, 139–148, 2001.

43. P. L'Ecuyer and C. Lemieux. Variance reduction via lattice rules. *Management Science*, 46, 9, 1214–1235, 2000.

Publications in Refereed Conference Proceedings

44. A. Emmett-Iwaniw*,C. Lemieux. Using adaptive basis search method in quasi-regression to interpret black-box models. To appear in *Proceedings of the Winter Simulation Conference*, 2025.

45. N. Kirk, C. Lemieux. An improved Halton sequence for implementation in quasi-Monte Carlo methods. *Proceedings of the 2024 Winter Simulation Conference*, 431–442, IEEE Press, Piscataway, NJ, 2024.

46. C. Lemieux and J. Wiart. On the distribution of scrambled $(0, m, s)$-nets over unanchored boxes. In: *Monte Carlo and Quasi-Monte Carlo Methods 2020*, A. Keller (ed), Springer, 187-230, 2022.

47. H. Faure, C. Lemieux and X. Wang*. Extension of Atanassov's methods for Halton sequences. In: *Monte Carlo and Quasi-Monte Carlo Methods 2010*, L. Plaskota and H. Woźniakowski (Eds.), Springer (2012), 345–362.

48. R.G. Esteves*, C. Lemieux and M. McCool, "Real Options for Mobile Communication Management", Proc. IEEE Global Telecommunications Conference (GLOBECOM) 2011 Workshop - UbiCoNet, Houston, USA.

49. R.G. Esteves*, C. Lemieux and M. McCool. Input-adaptive QMC-Kalman filters for track fitting. Proceedings of *ADAPTIVE 2011*, 9–14, 2011.

50. C. Lemieux and H. Faure. New Perspectives on $(0, s)$-Sequences, *Monte Carlo and Quasi-Monte Carlo 2008*, P. L'Ecuyer and A. B. Owen eds, Springer-Verlag, 113–130, 2009.

51. C. Bernard and C. Lemieux. Fast simulation of equity-linked life insurance contracts with a surrender option. *Proceedings of the 2008 Winter Simulation Conference*, 444-452, IEEE Press, Piscataway, NJ, 2008.

52. C. Lemieux and J. La*. A study of variance reduction techniques for American option pricing. *Proceedings of the 2005 Winter Simulation Conference*, 1884–1891, IEEE Press, Piscataway, NJ, 2005.

53. C. Lemieux. Randomized quasi-Monte Carlo: a tool for improving the efficiency of simulations in finance. *Proceedings of the 2004 Winter Simulation Conference*, 1565–1573, IEEE Press, Piscataway, NJ, 2004.

54. C. Lemieux and A.B. Owen. Quasi-regression and the relative importance of the ANOVA components of a function, *Monte Carlo and Quasi-Monte Carlo 2000*, K.-T. Fang, F. J. Hickernell, and H. Niederreiter eds, Springer-Verlag, 331-344, 2002.

55. C. Lemieux and P. L'Ecuyer. On the use of quasi-Monte Carlo methods in computational finance, *Computational Science - ICCS 2001 (part I)*, Lecture Notes in Computer Science vol. 2073, Springer, 607 - 618, 2001.

56. D. Ormoneit, C. Lemieux and D. Fleet. Lattice particle filters. *Proceedings of the Seventeenth Conference on Uncertainty in Artificial Intelligence*, D. Koller and J. Breese Eds., Morgan Kaufmann Publishers, 395–402, 2001.

57. C. Lemieux and P. L'Ecuyer. Using lattice rules for variance reduction in simulation. *Proceedings of the 2000 Winter Simulation Conference*, 509–516, IEEE Press, December 2000.

58. C. Lemieux and P. L'Ecuyer. A comparison of Monte Carlo, lattice rules and other low-discrepancy point sets. *Monte Carlo and Quasi-Monte Carlo Methods 1998*, H. Niederreiter and J. Spanier Eds., 326–340, Springer, Berlin, 1999.

59. H. Ben Ameur, P. L'Ecuyer and C. Lemieux. Variance reduction of Monte Carlo and randomized quasi-Monte Carlo estimators for stochastic volatility models in finance. *Proceedings of the 1999 Winter Simulation Conference*, 336–343, IEEE Press, December 1999.

60. P. L'Ecuyer and C. Lemieux. Quasi-Monte Carlo via linear shift-register sequences. *Proceedings of the 1999 Winter Simulation Conference*, 632–639, IEEE Press, December 1999.

61. C. Lemieux and P. L'Ecuyer. Lattice rules for the simulation of ruin problems. *Proceedings the 13th European Simulation MultiConference*, vol.2, 533–537, Society for Computer Simulation, Ghent, Belgium, 1999.

62. C. Lemieux, P. L'Ecuyer. Efficiency improvement by lattice rules for pricing Asian options. *Proceedings of the 1998 Winter Simulation Conference*, 97–104, IEEE Press, December 1998.

63. C. Lemieux and P. L'Ecuyer. An empirical comparison of diffusion approximation and simulation in ATM networks, *Proceedings of the Sixth International Symposium on Modeling, Analysis and Simulation of Computer and Telecommunication Systems*, 101–106, 1998.

Other Publications

64. C. Lemieux. Control variates. Contributed entry in "Wiley StatsRef-Statistics Reference Online", 2016

65. C. Lemieux. Discussion of "Sequential Quasi-Monte Carlo" by M. Gerber and N. Chopin, *Journal of the Royal Statistical Society Series B: Statistical Methodology*, 77, 3 (2015), 566–567.

66. H. Faure and C. Lemieux, Corrigendum to: Improvements on the star discrepancy of (t, s)-sequences. *Acta Arithmetica*, 159, 299–300, 2013.

67. X. Wang*, C. Lemieux and H. Faure. A note on Atanassov's discrepancy bound for the Halton sequence. Working paper 2008-04, Department of Statistics and Actuarial Science, University of Waterloo, 2008. (Updated September 2013)

68. C. Lemieux. A comparison of copy rules and Korobov rules. Yellow Series, Research Paper No. 836, Department of Mathematics and Statistics, University of Calgary, 2004.

69. C. Lemieux, M. Cieslak* and K. Luttmer*. RandQMC user's guide: a package for randomized quasi-Monte Carlo methods in C. Technical Report 2002-712-15, Department of Computer Science, University of Calgary, 2002.

70. P. L'Ecuyer and C. Lemieux. On the choice of quasi-random point sets with a lattice structure, *Proceedings of Monte Carlo Simulation 2000*, Monte Carlo, June 2000.

71. C. Lemieux. *L'utilisation de règles de réseau en simulation comme technique de réduction de la variance.* Ph.D. Thesis, Université de Montréal, 2000.

72. C. Lemieux. *L'évaluation des options asiatiques.* M.S. Thesis, Université de Montréal, 1996.

Software

73. R package `nvmix`, E. Hintz, M. Hofert and C. Lemieux, released in 2018, last update May 12, 2021.

74. R package `qrng`, M. Hofert and C. Lemieux, released in 2015, last update November 26, 2020.

Conference/Workshop Talks

"Golden Ratio Nets and Sequences ", Plenary talk at IMACS Seminar on Monte Carlo Methods, Chicago, July 2025

"Efficient Simulation of Leak-and-Detection-And-Repair Program", CanCH4 Symposium, Carleton University, May 2025

Quasi-Random Sampling in Computational Finance, Recent Advances in Mathematical Finance and Insurance, Fields-CFI Conference, September 2023

Quasi-Random Sampling with Black Box or Acceptance-Rejection Inputs, Foundations of Computational Mathematics, Paris, France, June 2023

Counting Points in Boxes with Henri Faure: From Discrepancy Bounds to Dependence Structures, Monte Carlo and Quasi-Monte Carlo Methods 2018, Rennes, France, July 2018

Implementation of irreducible Sobol' sequences in prime power bases, IMACS Seminar on Monte Carlo Methods, Montreal, Canada, July 2017.

Importance Sampling and QMC methods in Risk Management, Plenary talk at Monte Carlo and Quasi-Monte Carlo Methods 2016, Stanford, CA, August 2016

Quasi-random numbers for copula models, ICERM Workshop on Discrepancy Theory, Brown University, Providence, RI, October 2014.

Tractability Using Periodized Generalized Faure Sequences, ICERM Workshop on Information-Based Complexity and Stochastic Computation, Brown University, Providence, RI, September 2014.

An adaptive premium policy with a Bayesian motivation in the classical risk model, Statistical Society of Canada Annual Meeting, Edmonton, May 2013

A study of randomized quasi-Monte Carlo methods via dependence concepts, Statistical Society of Canada Annual Meeting, Guelph, June 2012

An adaptive premium policy with a Bayesian motivation in the classical risk model, Montreal MPRIME Seminar of Actuarial & Financial Mathematics, UQAM, Montreal, March 2012

New perspectives on $(0, s)$-sequences, (Plenary Talk) Monte Carlo and Quasi-Monte Carlo Methods 2008, Montreal, July 2008.

Acceleration of the Multiple-Try Metropolis Algorithm using antithetic and stratified sampling, Statistical Society of Canada Annual Meeting, St. John's, Canada, June 2007.

Quasi-Monte Carlo and Finance, Canadian Mathematical Society Summer Annual Meeting, Calgary, Canada, June 2006

Randomized Quasi-Monte Carlo: A Tool for Improving the Efficiency of Simulations in Finance, Winter Simulation Conference, Washington D.C., December 2004

Randomized Quasi-Monte Carlo Methods for Computer Experiments, NPCDS/SAMSI Workshop on The Design and Analysis of Computer Experiments for Complex Systems, Banff, July 2004

Quality Measures and Parameter Search for Digital Nets, Monte Carlo and Quasi-Monte Carlo Methods in Scientific Computing 2002, Singapore, November 2002.

Quasi-Monte Carlo Methods in Finance, CAIMS/SCMAI Annual Meeting, Calgary, Canada, June 2002.

Variance Results and Selection Criteria for Randomized Quasi-Monte Carlo Methods, CRM Workshop on Random Number Generation and Highly Uniform Point Sets, Montreal, Canada, June 2002.

Randomized Quasi-Monte Carlo Methods for Multivariate Integration, Société Statistique du Canada/ Statistical Society of Canada Annual Meeting, Hamilton, Canada, May 2002.

Lattice Particle Filters, IMACS Seminar on Monte Carlo Methods, Salzburg, Austria, September 2001.

Réduction de variance par des règles de réseaux randomisées, FRANCORO III, Québec, Canada, May 2001.

Using lattice rules for variance reduction in simulation, Winter Simulation Conference, Orlando, December 2000

Quasi-regression and the relative importance of the ANOVA components of a function, Monte Carlo and Quasi-Monte Carlo Methods in Scientific Computing 2000, Hong Kong, November 2000

Quasi-Monte Carlo via Linear-Shift Registers, Winter Simulation Conference, Phoenix AZ, December 1999

Efficiency improvement by lattice rules for pricing Asian options, Winter Simulation Conference, Washington DC, December 1998

An empirical comparison of diffusion approximation and simulation in ATM networks, MASCOTS, Montreal, July 1998

A comparison of Monte Carlo, lattice rules and other low-discrepancy point sets, Monte Carlo and Quasi-Monte Carlo Methods in Scientific Computing 1998, Claremont, California, June 1998

Grants

Co-Applicant on NSERC Alliance Grant *Evaluation of Current and Emerging Methane Emission Quantification Tools for Upstream Oil and Gas Facilities*, total funds of \$186,752, May 2022-April 2023.

MITACS Accelerate Grant for project "Implementing AI models to improve persona classification and portfolio performance predictions" for Gavin Orok, \$15,000, May–August 2023.

Co-PI for MITACS Business Strategy Internship Grant for project "Enhancements to the Simulation of a Methane Emission Reduction Program" for Augustine Wigle, \$15,000, January – April 2022

Co-applicant on NSERC CREATE grant *Machine Learning in Quantitative Finance and Business Analytics*, total funds of \$1.65M (2018–2024)

NSERC Discovery Grant (Mathematics and Statistics Committee): \$120,000 (2020–2025), \$85,000 (2015–2020), \$100,000 (2010–2015); \$90,000 (2005–2010), \$48,000 (2001–2005).

Courses Taught

STAT 906: Computer-Intensive Methods in Computational Finance, Fall 2010, 2015, 2020 (online), 2021, 2023, 2025

ACTSC 431: Casualty and Health Insurance Mathematics II, Fall 2025

STAT 340: Stochastic Simulation Models, Winter 2021 (online) & 2022

ACTSC 632: known as "Life Insurance III" until 2015 and as "Data Science with Actuarial Applications" from 2016, Spring 2010, 2011, 2013, 2016–2018, 2023

ACTSC 446: Mathematical Models in Finance, Fall 2007, 2011, 2015 & 2021 (online)

ACTSC 991: Predictive Analytics in Actuarial Science, Spring 2018

ACTSC 432: Loss Models II, Spring 2010, 2016, 2017

ACTSC 445: (formerly known as "Asset-Liability Management"), Fall 2006, Fall 2008, Spring 2009

ACTSC 453: Basic Pension Mathematics, Winter 2008

ACTSC 372: (formerly known as "Corporate Finance II"), Winter 2007, Spring 2011

ACTSC 231: Mathematics of Finance, Fall 2008, Spring 2009

I also taught Discrete Mathematics, Design and Analysis of Algorithms I, Introduction to Probability, Risk Theory, and Operations Research courses at the University of Calgary

Professional Activities

Member of the NSERC CREATE Evaluation Committee, July 2025–present

Chair of the 16th Monte Carlo and Quasi-Monte Carlo Methods in Scientific Computing, held at the University of Waterloo, August 18-23, 2024

Member of the Steering Committee for the Monte Carlo and Quasi-Monte Carlo Methods conference series (since September 2021)

Member of the Steering Committee for the IMACS Monte Carlo Methods conference series (since August 2021)

Member of the Academic Research Committee, Canadian Institute of Actuaries/Institut Canadien des Actuaires (July 2021–June 2024)

Member of the 2021 Fields-CFI-CQAM Industrial Problem-Solving Workshop Committee (February-August 2021)

External reviewer for Department of Statistical and Actuarial Sciences, Western University, January 2019

External reviewer for actuarial science programs (undergraduate and graduate), Ecole d'Actuariat, Université Laval, October 2018

Member of the Fields Distinguished Lecturer in Statistical Sciences (DLSS) committee, 2013–2016

Co-organizer of Workshop "Approximation of High-Dimensional Numerical Problems - Algorithms, Analysis and Applications " with I.H. Sloan (University of New South Wales) and H. Woźniakowski (Columbia University and Warsaw University) at Banff International Research Station, September 27, 2015–October 2, 2015.

Member of the Advisory Board for large research project "Special Research Area (SFB): Quasi-Monte Carlo-Methods, Theory and Applications" (PI: Prof. G. Larcher) funded by the Austrian Research Foundation, 2014–2017

Associate Editor for ESAIM Probability & Statistics, 2013–2022

Associate Editor for ACM Transactions on Modeling and Computer Simulation, 2010–2022

Program committee of Monte Carlo and Quasi-Monte Carlo Conference (2010, 2012, 2014, 2016, 2018, 2020).

Program committee for IMACS Conference on Monte Carlo Methods, 2013, 2015, 2017, 2019, 2021

External referee for Swiss National Science Foundation, Austrian Science Fund, NSERC, NATEQ, NSF.

Referee for Acta Mathematica Scientia, *ACM TOS*, *ACM TOMACS*, *Annals of Actuarial Science*, *Annals of Applied Probability*, *Computational Statistics and Data Analysis*, *European Actuarial Journal*, *Journal of Computational Finance*, *J. of the American Statistical Association*, *J. of Multivariate Analysis*, *J. of Complexity*, *J. of Computational and Applied Mathematics*, *Journal of The Royal Statistical Society Series B*, *Management Science*, *Mathematical Programming: Series A*, *Mathematics and Computers in Simulation*, *Mathematics of Computation*, *Methodology and Computing in Applied Probability*, *Monatshëfte für Mathematik*, *Operations Research*, *Operations Research Letters*, *Princeton University Press*, *SIAM J. on Financial Mathematics*, *SIAM J. on Numerical Analysis*, *Statistics and Computing*, *Technometrics*, and various refereed conference proceedings.

Student Supervision

Current students

Ambrose Emmett-Iwaniw, PhD (Statistics), September 2021–present

Mihail Santean, MQF, September 2025–present

Maddie Chen, MQF, September 2025–present

Past Postdoctoral researchers

Nathan Kirk, September 2023–August 2024

Florian Puchhammer (co-supervised with M. Hofert), August 2021–July 2022

Jaspar Wiart, January 2018–January 2019 & February 2022–January 2023

Past PhD students

G.Y. Dong, PhD (Statistics). Thesis title: Constructions and applications of quasi-random point sets with negative dependence. September 2018–August 2022. Current position: Teaching Stream Assistant Professor at the University of Toronto

E. Hintz (co-supervised with M. Hofert), PhD (Statistics). Thesis title: Randomized quasi-Monte Carlo methods with applications to quantitative risk management. September 2017–April 2023. Current position: Teaching Stream Assistant Professor at the University of Waterloo

Y. Taniguchi (PhD Statistics). Thesis title: Importance Sampling and Stratification Techniques for Multivariate Models with Low-Dimensional Structures, graduated 2017. Current position: Director at Agam Capital Management Canada

S. Li (PhD Actuarial Science, co-supervised with D. Landriault). Thesis title: Adaptive policies in insurance risk models, graduated 2015. Current position: Associate Professor at Western University

F. Liu (PhD Actuarial Science, co-supervised with J. Cai). Thesis title: Risk Measures and Optimal Reinsurance, graduated 2015. Current position: Associate Professor at the University of Waterloo

R. G. Esteves, (Computer Science, co-supervised with M. McCool). Thesis title: A study of adaptation mechanisms for simulation algorithms, graduated September 2012. Current position: Software Engineer at Intel Corporation

Past Masters students (thesis)

MQF (U. Waterloo), Gavin Orok, September 2022–April 2024

M.Math Statistics (U. Waterloo), Y. Taniguchi, Dependence concepts and selection criteria for lattice rules, December 2013

M.Sc. Statistics (U. Calgary): J. La., A Study of Quasi-Monte Carlo Methods and Variance Reduction Techniques for Improving the Least-Squares Monte Carlo Algorithm for American Option Pricing, July 2007

M.Sc. Computer Science (U. Calgary): M. Cieslak, RQMC Methods in a Light Distribution Model for Plant Development Simulations, December 2005

M.Sc. Computer Science (U. Calgary): D. Dembeck, Dynamic Numerical Integration Using Quasi-Monte Carlo Methods, December 2003

Past Masters students (research paper)

Computational Mathematics: E. Kovalova (December 2013), N. McNeilly (August 2011), J. de Maeseneire (August 2010). L. Serre (August 2010), S. Zgheib (August 2009)

Actuarial Science: R. Jain (December 2016); B. Zhou (December 2012), R. Agarwal (August 2010), J. Gu (Agust 2009), J. Liang (August 2009), W. Bao (December 2008)

Statistics: A. Emmett-Iwaniw (August 2021), J. Raymond (August 2020), A. Iu (August 2020), G. Dong (August 2018), P. Li (April 2018), E. Hintz (August 2016), X. Hao (December 2011), L. Wang (August 2011)

Statistics-computing: Y. Yao (December 2010)

Quantitative Finance & Statistics-Finance: Albert Liu (December 2023), Hao Ting Liu (December 2023), Y. Deng (December 2020), Z. Chen (December 2020), J. Su (December 2018), M. Zuber (April 2015), H. Munawar (December 2010), Y. Zhao (December 2008), Y. Lin (December 2008), R. Krook (December 2007), T. Huang (December 2007)

Undergraduate research students

Waterloo: M. Mao (Winter 2024), G. Orok (USRA–Fall 2021), Kyu Min Shim (USRA–Spring 2022), J. Pabelico-Arcilla (Spring 2021), Y. Xun (Winter 2016–URI), Z. Li (Fall 2015), J. Funk (USRA–Spring 2013), Y. Wei (Spring 2012), F. Liu (Spring 2009), M. Glot (Spring 2009), H. Munawar (Winter 2009), X. Wang (Winter and Spring 2008), B. Cheng (Spring 2007–URI); Calgary: H. Gill (USRA–Spring 2004), J. La (Spring 2004), M. Cieslak (USRA–Spring 2002), K. Luttmer (USRA–Spring 2002)

External Examiner for Ph.D. Defenses:

Bastien Doignies, Université Lyon 1, France, November 2024

Loïs Paulin, Université Lyon 1, France, April 2023

Iltre Mtalai, Université Laval, Canada, September 2018

Hélène Perrier, Université Lyon 1, France, March 2018

Joseph El Maalouf, Université Savoie Mont-Blanc, France, November 2016

Dameng Tang, University of Toronto, Canada, April 2016

Houying Zhu, University of New South Wales, Australia, March 2016

Rami El-Haddad, Université Joseph-Fourier, Grenoble, France, December 2008

Sophia Zaanoun, Hautes Etudes Commerciales, Montréal, Canada, May 2007
Ph.D. Committees:

Weijie Zhou, Ph.D. in Computer Science, 2025

Luke Hagar, Ph.D. in Statistics, 2024

Avinash Prasad, Ph.D. in Statistics, 2020

Service

Departmental and Faculty Level Roles

Associate Dean Operations and Academic, Faculty of Mathematics, January 2022–June 2025

Associate Dean of Graduate Studies, Faculty of Mathematics, July 2017–June 2019

Interim Chair, Department of Statistics and Actuarial Science, July 2012–June 2014

Associate Chair for Actuarial Science (July 2008–September 2009; May 2010–June 2011; July 2016–June 2017)

University Level Service

Member of Faculty Grievance Committee, October 2025–present

Member of Senate, May 2020–present;

Member of Senate Graduate Council, September 2025–August 2026

Member of Senate Executive Committee, May 2020–August 2025

Co-chair of the Task Force for Principles on Institutional Partnerships, August 2024–March 2025;

Co-chair of the Salary Anomaly Working Group, February 2023 – October 2024;

PhD Chairs Pool, October 2020–August 2021, September 2025 –present; VP Research and International Nominating Committee, February - June 2021; Salary Anomaly Working Group, September 2015–July 2016, September 2020–June 2021, February 2023–present; Graduate Supervision Task Force, December 2018–August 2023; Senate Graduate Research Council, July 2017–June 2019; Graduate Operations Committee, July 2017–June 2019; GradTalks co-chair, 2018; Academic Leadership Advisory Committee, July 2013–June 2014; Pension and Benefits, July 2011–June 2012;

Faculty of Mathematics Committees: Tenure and Promotions, July 2017–June 2020; Graduate Studies Committee, July 2017–June 2019; Strategic Plan Committee, July 2017–September 2019, January 2022–present; Undergraduate Affairs Committee, 2016–2017; Dean's Advisory Council, 2012–2014, July 2017–June 2019; Computing Advisory Committee, 2011–2012; Strategic Plan Working Group, 2011–2012

Department Committees: Appointments (2008–2010, 2011-2014, 2015-2016); Tenure and Promotion (2009, 2011–2014); Chair Nominating (2011–2012; 2017, June 2021–May 2022); Performance (2012-2014, 2016, 2021), Programs (2012–2013, 2016–2017), Graduate Operations (2008–2011)