Lisa Gao, PhD, ASA

https://uwaterloo.ca/scholar/l9gao
lisa.gao@uwaterloo.ca
+1 (519) 888-4567 x41387
200 University Ave W, M3 2116
Waterloo, ON N2L 3G1

Research interests: insurance and risk analytics, predictive modelling, dependence modelling

Academic Experience

2022–current	Assistant Professor, Statistics and Actuarial Science	*University of Waterloo*

Education

2022	PhD, Actuarial Science, Risk Management, and Insurance	*University of Wisconsin–Madison*
2016	BMath, Joint Honours Actuarial Science and Statistics	*University of Waterloo*

Professional Designations

2018	Associate of the Society of Actuaries (ASA)	*Society of Actuaries*

Publications

Gao, L. and Shi, P. (2022). "Leveraging High-Resolution Weather Information to Predict Hail Damage Claims: A Spatial Point Process for Replicated Point Patterns," *Insurance: Mathematics and Economics*, 107(2022), pp. 161-179.

Gao, L. and Rosenberg, M. A. (2021). "Assessing the Causal Impact of Delayed Oral Health Care on Emergency Department Utilization," *North American Actuarial Journal*, 25(1), pp. 40-52.

Frees, E. W. and Gao, L. (2020). "Predictive Analytics and Medical Malpractice," *North American Actuarial Journal*, 24(2), pp. 211-227.

Cretu, D., Gao, L., Liang, K., Soosaipillai, A., Diamandis, E., and Chandran, V. (2018). "Differentiating Psoriatic Arthritis From Psoriasis Without Psoriatic Arthritis Using Novel Serum Biomarkers," *Arthritis Care & Research*, 70(3), pp. 454-461.

Contributed book chapters:
Model Selection and Estimation, *with Edward W. Frees for Loss Data Analytics, Open Actuarial Textbooks*
Aggregate Loss Models, *with Peng Shi for Loss Data Analytics, Open Actuarial Textbooks*

Works in Progress

Gao, L. and Shi, P. (2023+). "Risk Modeling of Property Insurance Claims from Weather Events," *Revise & Resubmit, Journal of Risk and Insurance*.

Gao, L. and Shi, P. "A Copula-based Sample Selection Model for Replicated Spatial Data."

Gao, L. "A Mixed-Effects Point Process For Spatially Discrete Claim Outcomes With High-Resolution Predictors."

Gao, L. and Shi, P. "A Multivariate Selection Model for Replicated Spatial Data: Applications to Property Insurance Claims Management."

Zhao, Y., Yang, F., and Gao, L. "Catastrophe Risk Pooling."

Teaching

2023–2024	ACTSC 363 - Casualty and Health Insurance Mathematics 1	*Winter 2024*
2023–2024	ACTSC 625 - Casualty and Health Insurance Mathematics (grad)	*Winter 2024*
2022–2023	ACTSC 231 - Introductory Financial Mathematics	*Winter: 4.46/5, 73 students*

Teaching Assistance

2021–2022	GB 656 - Machine Learning for Business Analytics *(for Peng Shi)*	
2021–2022	RMI 300 - Principles of Risk Management *(for Carl Barlett)*	
2020–2021	RMI 300 - Principles of Risk Management *(for Joan Schmit)*	*Fall: 4.76/5, 88 students* *Spring: 4.93/5, 84 students*
2019–2020	RMI 300 - Principles of Risk Management *(for Joan Schmit)*	*Fall: 4.41/5, 153 students* *Spring: 4.76/5, 138 students*
2018	ACT SCI 652 - Loss Models I *(for Edward W. Frees)*	
2016–2017	GB 306 - Business Analytics I *(for Anita Mukherjee)*	*Fall: 4.43/5, 177 students* *Spring: 4.63/5, 51 students*

Invited Presentations

2023 Actuarial Research Conference (Invited Session) Climate Change: Models and Data
Risk Modeling of Hail Damage Insurance Claims Using a Factor Copula Regression for Replicated Spatial Data

2023 Waterloo Conference in Statistics, Actuarial Science, and Finance
Risk Modeling of Hail Damage Insurance Claims Using a Factor Copula Regression for Replicated Spatial Data

2023 Georgia State University Maurice R. Greenberg School of Risk Science Seminar
Insurance Claims Management for Spatially Correlated Weather Property Losses

2022 University of Waterloo Statistics and Actuarial Science Student Seminar
A Spatial Factor Copula for Replicated Weather Property Insurance Loss Data

2022 University of New South Wales School of Risk and Actuarial Studies Seminar
A Marked Spatial Point Process for Insurance Claims Management

2022 The Ohio State University Mathematics Department Seminar
A Marked Spatial Point Process for Insurance Claims Management

2021 University of Waterloo Statistics and Actuarial Science Department Seminar
A Marked Spatial Point Process for Insurance Claims Management

2021 University of Wisconsin-Eau Claire Mathematics Department Seminar
Leveraging High-Resolution Weather Information to Predict Hail Damage Claims: A Spatial Point Process for Replicated Point Patterns

2021 University of St. Thomas Mathematics Department Seminar
Leveraging High-Resolution Weather Information to Predict Hail Damage Claims: A Spatial Point Process for Replicated Point Patterns

2021 Chinese University of Hong Kong Finance Department Seminar
Leveraging High-Resolution Weather Information to Predict Hail Damage Claims: A Spatial Point Process for Replicated Point Patterns

Contributed Talks

2023 Joint Statistical Meetings
Risk Modeling of Hail Damage Insurance Claims Using a Factor Copula Regression for Replicated Spatial Data

2023 International Congress on Insurance: Mathematics and Economics
Risk Modeling of Hail Damage Insurance Claims Using a Factor Copula Regression for Replicated Spatial Data

2021 Waterloo Student Conference in Statistics, Actuarial Science and Finance (Presentation Award)
Leveraging High-Resolution Weather Information to Predict Hail Damage Claims: A Spatial Point Process for Replicated Point Patterns

2021	Actuarial Research Conference (Best Student Presentation Award) *Leveraging High-Resolution Weather Information to Predict Hail Damage Claims: A Spatial Point Process for Replicated Point Patterns*
2021	International Congress on Insurance: Mathematics and Economics *Leveraging High-Resolution Weather Information to Predict Hail Damage Claims: A Spatial Point Process for Replicated Point Patterns*
2019	Actuarial Research Conference (Honorable Mention Presentation Award) *The Impact of Unmet Oral Health Needs on Hospital Emergency Department Utilization*

Research Funding

2023–2028	NSERC Discovery Grants, $135,000 CAD
2023–2024	NSERC Discovery Launch Supplement, $12,500 CAD

Honours & Awards

2021	Waterloo Student Conference in Statistics, Actuarial Science and Finance Presentation Award
2021	Actuarial Research Conference Best Student Presentation
2017–2021	Society of Actuaries James C. Hickman Scholar
2017, 2020, 2021	Wisconsin School of Business Distinguished Teaching Award
2016–2021	Wisconsin School of Business Graduate Scholarship
2019, 2021	Wisconsin School of Business Travel Award
2019	Actuarial Research Conference Honorable Mention
2019	UW–Madison Student Research Grants Competition Travel Award
2016	University of Waterloo Mathematics Dean's Honours List – With Distinction
2014	NSERC Undergraduate Student Research Award
2014	University of Waterloo President's Research Award

Service

Referee for	*Insurance: Mathematics and Economics, Journal of Risk and Insurance, European Actuarial Journal, Canadian Journal of Statistics*
2023–2024	Organizer, Actuarial Science and Financial Mathematics Seminar Series
2022–2024	Admissions Committee, Master of Actuarial Science (MActSc)
2023	Consultant, Math Strategic Framework, Faculty of Mathematics
2023	Organizing Committee, Waterloo Conference in Statistics, Actuarial Science, and Finance
2022	Panelist, CANSSI Ontario Job Market Advice
2020–2022	Social Media Assistant, Journal of Risk and Insurance
2019–2022	Organizer, Wisconsin School of Business Teaching Improvement Program
2017–2021	Panelist, Wisconsin School of Business PhD Proseminar
2018	Discussant, American Risk and Insurance Association Annual Meeting
2018	Panelist, DocNet Recruiting Forum

Student Supervision

PhD	Yimiao Zhao (current, co-supervision with Fan Yang)
PhD committee	Yiping Guo (current)
MMath	Haya Anis Kamel (2022), Matthew Crane (2023), Qianyu Chen (2023), Mwasi Mboya (current)

Professional Experience

May–Aug 2015	Actuarial Co-op, Segregated Fund Valuation	*Manulife, Waterloo*
Jan – Apr 2014	Actuarial Co-op, John Hancock Retirement Pricing	*Manulife, Toronto*
May–Aug 2013	Actuarial Assistant, Capital and Risk Management	*Foresters, Toronto*
May–Aug 2012	Actuarial Assistant, Capital and Risk Management	*Foresters, Toronto*

Other

Citizenship	Canadian
Languages	English (native), Mandarin (proficient), French (intermediate)

Last updated: December 2023