

Gracia Yunruo Dong, PhD

LAST UPDATED: July 3, 2024

Canadian citizen; One child (born August 2022)

Assistant Professor, Teaching Stream
Human Biology Program and Department of Statistical Sciences
University of Toronto, St. George Campus

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Employment

- Assistant Professor, Teaching Stream, Human Biology Program and Department of Statistical Sciences, University of Toronto, July 2024 – Present
- Postdoctoral Fellow, University of Toronto and University of Victoria, September 2022 – June 2024
- Data Science Consultant, Polyalgorithm Machine Learning, October 2022 – April 2023
- Evaluation Consultant, Student Success Office, University of Waterloo, February 2021 – April 2022
- Associate Business Analyst, Risk Management Information Technology, Scotiabank, September 2016 – December 2016
- Actuarial Student, Audit Services, Manulife, January 2016 – April 2016
- Undergraduate Research Assistant (NSERC USRA), Department of Statistics, University of Waterloo, May 2015 – August 2015
- Actuarial Student, Pricing and Valuation, Aurigen Reinsurance, January 2014 – April 2014 and September 2014 – December 2014
- Co-op Student, Development Services, City of Markham, September 2012 – December 2012

Affiliations

- Applied Health Data Analytics, Island Health, Victoria, BC, Canada

Education

- PhD Statistics, University of Waterloo, September 2018 – August 2022
 - Advisor: Dr. Christiane Lemieux
 - Thesis Title: Constructions and applications of quasi-random point sets with negative dependence
- MMath Statistics, University of Waterloo, September 2017 – August 2018
 - Advisor: Dr. Christiane Lemieux
 - Research Paper Title: Estimating state space parameters using quasi-Monte Carlo methods
- BMath Honours Statistics and Actuarial Science with Finance Option, Computer Science Minor (Co-op), University of Waterloo, January 2013 – April 2017

Teaching Experience

Course Instructor

Note: “Enrolment” indicates enrolment for sections taught (not total enrolment for entire course).

Term	Course	Enrolment	Notes
University of Toronto			
Fall 2023	STA220: The Practice of Statistics I	182	Instructed one section as one of three instructors.
University of Victoria			
Winter 2024	STAT498: Seminar and Independent Project, Section Topic Title: Simulation Experiments	1	Online. Co-instructed with Dr. Laura Cowen.
Summer 2023	MATH490: Directed Studies in Mathematics, Section Topic Title: Inequalities in Healthcare	1	Online. Co-instructed with Dr. Laura Cowen.
University of Waterloo			
Spring 2021	AFM113: Analytic Methods 2 for Business	14	Online. Single section course.

Teaching Assistant

University of Toronto

- STA220: The Practice of Statistics I (Winter 2024)

University of Waterloo

- AFM113: Analytic Methods 2 for Business (Spring 2022)
- MATH127: Calculus 1 for the Sciences (Winter 2017)
- MATH135: Algebra for Honours Mathematics (Fall 2015)
- MATH136: Linear Algebra 1 for Honours Mathematics (Spring 2016, Winter 2017)
- MATH137: Calculus 1 for Honours Mathematics (Fall 2015)
- MATH138: Calculus 2 for Honours Mathematics (Winter 2015)
- MATH600: Introduction to Mathematical Software for Teachers (Fall 2018)
- STAT231: Statistics (Spring 2014, Fall 2017)
- STAT330: Mathematical Statistics (Winter 2018)
- STAT333: Applied Probability/Stochastic Processes 1 (Spring 2018)
- STAT340: Stochastic Simulation Methods (Winter 2021, Winter 2022)
- STAT341: Computational Statistics and Data Analysis (Winter 2019, Winter 2020, Fall 2021)
- STAT430: Experimental Design (Spring 2019)
- STAT431: Generalized Linear Models and Their Applications (Fall 2017, Fall 2018, Spring 2020)
- STAT443: Forecasting (Winter 2018, Spring 2018, Winter 2019, Spring 2019)
- STAT906: Computer Intensive Methods for Stochastic Models in Finance (Fall 2020)

Other Teaching Experience

- Instructor for TA training workshop, Fall 2018, Department of Statistics and Actuarial Science, University of Waterloo

Student Supervision

Undergraduate Research Students

- Sophie Dugas, BSc Physics and Astronomy, University of Victoria
 - STAT498: Simulation Experiments (Spring 2024)
 - MATH490: Inequalities in Healthcare (Summer 2023)

Research and Scholarship

Research Areas

Computational Statistics, Statistics Education, Quasi Monte-Carlo Methods, Public Health, Population Health, Healthcare Equity

Publications

Note: Student authors are indicated by ‘*’.

Articles Submitted

1. **Dong, G.**, McNichol, J. & Cowen, L. Model selection and model robustness for population size estimation in a two-sample study using capture-recapture techniques. Submitted to American Journal of Epidemiology (2024)
2. Perreault, S., **Dong, G.**, Stringer, A., Shin, H. & Brown, P. Case-crossover designs and overdispersion with application in air pollution epidemiology. *arXiv preprint arXiv:2401.14338*. Submitted to Biometrics (2024)
3. Bambi, J., Olobatuyi, K., Santoso, Y., Sadri, H., Moselle, K., Rudnick, A., **Dong, G.**, Chang, E. & Kuo, A. Use of patterns of service utilization and hierarchical survival analysis in planning and providing care for overdose patients and predicting the time-to-second overdose. Submitted to Knowledge (2024)

Articles in Refereed Journals

4. Bambi, J., **Dong, G.**, Santoso, Y., Moselle, K., Dugas, S.*, Olobatuyi, K., Rudnick, A., Chang, E. & Kuo, A. Patterns of service utilization across the full continuum of care: Using patient journeys to assess disparities in access to health services. *Knowledge* **4**, 252–264 (2024)
5. **Dong, G.**, Moselle, K., Robertson, S., Brown, P. & Cowen, L. Estimating the population size of persons contending with homelessness using electronic health records. *Journal of the Royal Statistical Society Series A: Statistics in Society* (2024)
6. **Dong, G.**, Hintz, E., Hofert, M. & Lemieux, C. Randomized quasi-Monte Carlo methods on triangles: Extensible lattices and sequences. *Methodology and Computing in Applied Probability* (2024)
7. Bambi, J., Santoso, Y., Sadri, H., Moselle, K., Rudnick, A., Robertson, S., Chang, E., Kuo, A., Howie, J., **Dong, G.**, Olobatuyi, K., Hajiabadi, M. & Richardson, A. A methodological approach to extracting patterns of service utilization from a cross-continuum high dimensional healthcare dataset to support care delivery optimization for patients with complex problems. *BioMedInformatics* **4**, 946–965 (2024)

8. Mugon, J., **Dong, G.**, Kim, N.-H. & Jobidon, E. Adapting the Motivated Strategies for Learning Questionnaire for a writing and communication program. *Collected Essays on Learning and Teaching* **14** (2023)
9. **Dong, G.** & Lemieux, C. Dependence properties of scrambled Halton sequences. *Mathematics and Computers in Simulation* **200**, 240–262 (2022)
10. Wiart, J., Lemieux, C. & **Dong, G.** On the dependence structure and quality of scrambled (t, m, s)-nets. *Monte Carlo Methods and Applications* **27**, 1–26 (2021)

Preprints and Manuscripts in Preparation

11. Olobatuyi, K., **Dong, G.**, Parker, M. & Ariyo, O. Extensions to generalized linear mixed cluster-weighted models. In Progress. (2024+)
12. **Dong, G.**, Berringer, H., Brown, P. & Cowen, L. Integrated population modelling using point-in-time counts and electronic health records to estimate the population size of persons contending with homelessness in Greater Victoria. In Progress. (2024+)
13. Faure, H., **Dong, G.** & Lemieux, C. A negative dependence framework to assess different forms of scrambling. *arXiv preprint arXiv:2209.02013* (2022)

Presentations

Invited

1. *An integrated population model to estimate the population size of persons contending with homelessness* 18th International Joint Conference on Computational and Financial Econometrics and Computational and Methodological Statistics, Virtual. 2024
2. *Estimating the population size of persons contending with homelessness using electronic health data* University of Victoria Mathematical and Statistical Biology Seminar, Virtual. 2024. <https://events.uvic.ca/event/84612-math-stat-biology-seminar-estimating-the-population-si>
3. *Using capture-recapture methods with data extracts from healthcare records to estimate population sizes of vulnerable populations: an application to Vancouver Island* UQAM Statistics Seminar Series, Virtual. 2023. <https://evenements.uqam.ca/evenements/seminaire-statqam-using-capture-recapture-methods-with-data-extracts-from-healthcare-records-to-estimate-population-sizes-of-vulnerable-populations-an-application-to-vancouver-island/26961>
4. *Using Capture-Recapture with data extracts from healthcare records to estimate population sizes of vulnerable populations – applications and data quality issues* CANSSI Showcase, Virtual. 2023. <https://canssi.ca/events/showcase-2023/>
5. *Analyzing Indian mortality with temperature attribution using case-crossover models* Statistical Society of Canada Annual Meeting, Ottawa, ON, Canada. 2023. <https://ssc.ca/sites/default/files/imce/ssc2023-program-with-abstracts.pdf>
6. *A randomized implementation of the triangular van der Corput sequence* University of Toronto, Department of Statistical Sciences Postdoc Day, Toronto, ON, Canada. 2022
7. *Randomized quasi-Monte Carlo methods on triangles: Extensible lattices and sequences* CORS/INFORMS International Conference, Vancouver, BC, Canada. 2022. https://www.cors.ca/sites/default/files/conference/2022_CORS_INFORMS_International_Conference_Program.pdf
8. *Halton sequences and negative dependence* University of Waterloo Student Seminar Series, Virtual. 2021. <https://uwaterloo.ca/statistics-and-actuarial-science/events/departement-seminar-gracia-dong>

Contributed

9. *Population size estimation in a two-sample study using capture-recapture techniques* Statistical Society of Canada Annual Meeting, St. John's, NL, Canada. 2024. <https://ssc.ca/sites/default/files/imce/ssc2024-program-with-abstracts.pdf>
10. *Estimating the abundance of homeless individuals on Vancouver Island using electronic health data* INFORMS Healthcare Conference, Toronto, ON, Canada. 2023. <https://www.abstractsonline.com/pp8/#!/10855/presentation/991>
11. *Adapting the Motivated Strategies for Learning Questionnaire (MSLQ) for first-year Faculty of Health students* Society for Teaching and Learning in Higher Education (STLHE) Annual Conference, Ottawa, ON, Canada. 2022
12. *Adapting the Motivated Strategies for Learning Questionnaire to help students take control of their learning* STLHE/SAPES Unconference, Virtual. 2021. <https://www.youtube.com/watch?v=fDWat4Z-DXk>
13. *Variance estimation of quasi-Monte Carlo integration without replication* Waterloo Student Conference in Statistics, Actuarial Science and Finance, Waterloo, ON, Canada. 2019. https://uwaterloo.ca/statistics-actuarial-science-finance-student-conference/sites/ca.statistics-actuarial-science-finance-student-conference/files/uploads/files/conference_program.pdf

Other Presentations and Guest Lectures

14. *An introduction to pseudo- and quasi-random number generation* Guest Lecture, STAT464, University of Victoria, Victoria, BC, Canada. Fall 2022

Awards, Scholarships, and Funding

- 2022-2024, CANSSI Distinguished Postdoctoral Fellowship, \$118000
- 2021-2022, Ontario Graduate Scholarship, \$15000
- 2021-2022, President's Graduate Scholarship, \$10000
- 2021, Statistics & Actuarial Science Chair's Award, \$1000
- 2021, Statistics & Actuarial Science Graduate Award, \$250
- 2020-2022, Math Domestic Doctoral Scholarship, \$10000
- 2020-2021, Queen Elizabeth II Graduate Scholarship in Science and Technology, \$15000
- 2020-2021, President's Graduate Scholarship, \$10000
- 2019-2020, Ontario Graduate Scholarship, \$15000
- 2019-2020, President's Graduate Scholarship, \$10000
- 2019, University of Waterloo Graduate Scholarship, \$1000
- 2019, Statistics & Actuarial Science Chair's Award, \$1000
- 2018-2020, Math Domestic Doctoral Scholarship, \$10000
- 2018, Math Domestic Graduate Award, \$6000
- 2018, Provost Doctoral Entrance Award, \$5000

- 2018, Doctoral Entrance Award, \$5000
- 2018, University of Waterloo Graduate Scholarship, \$1000, $\times 2$
- 2018, Statistics & Actuarial Science Chair's Award, \$1000, $\times 2$
- 2018, Statistics & Actuarial Science Graduate Award, \$1000
- 2017, University of Waterloo Graduate Scholarship, \$1000
- 2014, NSERC USRA, \$4500
- 2013, President's Scholarship, \$2000

Community-building, Professional Activities and Service

University-Level Committees

- Co-founder and President, Statistics Anti-Depression (S.A.D.) Club, University of Waterloo, May 2019 – August 2022

Conference and Workshop Organization and Involvement

- Judge, Case Study Poster Presentations, Statistical Society of Canada (SSC) Annual Meeting, June 2024
- Judge, Abstracts and Oral/Poster Presentations, Canadian Statistics Student Conference, June 2024
- Judge, Abstracts and Poster Presentations, Canadian Statistics Student Conference, May 2022
- Conference Organizing Committee Member, First Waterloo Student Conference in Statistics, Actuarial Science, and Finance, October 2019

Other Service

- Mentor, Datafest 2021, American Statistical Association, May 2021

Society Memberships and Positions Held

- Member of the Statistical Society of Canada (SSC), 2024 – Present
- Member of the SSC Student and Recent Graduate Committee, 2024 – Present

Reviewing Activities

- Reviewer, Journal of the Royal Statistical Society, Series C (Applied Statistics)

Additional Training and Workshops Attended

Pedagogical Training

- Course Design Foundations Program, University of Toronto, 2024
- Certificate of University Teaching Program, University of Waterloo, 2022
- Fundamentals of University Teaching Program, University of Waterloo, 2020

EDI Workshops and Webinars

- “Let’s Talk About Race and Collective Responsibility”, hosted by CANSSI, 2024
- “Microaggressions: They Aren’t Being Too Sensitive”, hosted by CANSSI, 2024
- “Implicit Bias: What You Don’t Know Might Hurt Someone”, hosted by CANSSI, 2023
- “Addressing Conflicts Related to Bias, Privilege, and Identity in the STEM Fields”, hosted by CANSSI, 2022