

Yiran Wang

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Personal Website Google Scholar

EDUCATION **University of Waterloo**

Ph.D., Statistics, Sep 2019 - Aug 2024

- Thesis: *Modeling and Bayesian Computations for Capture-Recapture Studies*
- Advisor: Audrey Béliveau, Ph.D., Martin Lysy, Ph.D.

University of California, Irvine

M.S., Statistics, Sep 2017 - Jun 2019

Donghua University

B.S., Statistics, Sep 2013 - Jun 2017

- Thesis: *Influence of China's Innovation on Total Factor Productivity Based on Quantile Regression*
- Advisor: Rong Jiang, Ph.D.

PROFESSIONAL EXPERIENCE **Postdoctoral Associate**

Yale School of Public Health, New Haven, CT Nov 2024 - Oct 2025

- Advisor: Bhramar Mukherjee, Ph.D.
- Develop causal mediation framework to analyze exposure mixtures using latent factor modeling.
- Investigate the relationship between frailty and pancreatic cancer using statistical methods.
- Study public health data equity, summarizing key concepts and proposing a practical, principle-based framework to improve data representativeness and usability.

Teaching Assistant

University of Waterloo, Waterloo, ON Sep 2019 - Apr 2024

- Held regular office hours, proctored tests, marked assignments and tests for:
 - STAT 202 Introductory Statistics for Scientists Fall 2019
 - STAT 230 Probability Winter 2020, Spring 2020
 - STAT 330 Mathematical Statistics Winter 2021, Fall 2021
 - STAT 331 Applied Linear Models Spring 2020, Fall 2020, Winter 2021
 - STAT 371 Applied Linear Models and Process Improvement for Business Fall 2019, Fall 2020, Winter 2022, Fall 2022
 - STAT 431 Generalized Linear Models and their Applications Spring 2022, Spring 2023
 - STAT 436/836 Introduction to the Analysis of Spatial Data in Health Research Winter 2023, Winter 2024

University of California, Irvine, Irvine, CA Apr 2018 - Mar 2019

- Held regular office hours, conducted weekly discussion sections, graded homework and examinations for:
 - STATS 7 Basic Statistics
 - STATS 67 Introduction to Probability and Statistics for Computer Science

Curriculum Vitae

Research Assistant

University of Waterloo, Waterloo, ON

Jan 2020 - Apr 2024

- Built a new framework for the plant-capture method to estimate population size by incorporating uncertainty in the plants' assessments and also other factors with Bayesian and frequentist inference approaches.
- Analyzed the stock population, proposed new Bayesian genetic mark-recapture methods, and applied to simulation studies and real-data analysis.
- Supervisor: [Audrey Béliveau, Ph.D.](#), [Martin Lysy, Ph.D.](#)

Consultant

UW Statistical Consulting & Collaborative Research Unit, Waterloo, ON

Sep 2023 - Apr 2024

- Advising students and faculty members on how to leverage sound statistical approaches in their analyses, with more active involvement in enhanced service projects.

PUBLICATIONS

1. **Yiran Wang**, Martin Lysy, and Audrey Béliveau (2025). Plant-Capture Methods for Estimating Population Size from Uncertain Plant Captures. *Epidemiology*. 36(3): 319–326. [\[DOI\]](#)
2. **Yiran Wang**, Alicia E. Boyd, Lillian Rountree, Yi Ren, Kate Nyhan, Ruchit Nagar, Jackson Higginbottom, Megan L. Ranney, Harsh Parikh, and Bhramar Mukherjee (2025). Towards Enhancing Data Equity in Public Health Data Science. *arXiv preprint arXiv:2508.20301* [\[arXiv\]](#)
3. Daniel Y. Dapaah, Shoutaro Arakawa, Gwennyth A. Carroll, **Yiran Wang**, Stewart McLachlin, Mitsuru Saito, and Thomas L. Willett. Advanced Glycation End-product Adducts Alter the Bone Collagen Network and Human Cortical Bone Fracture Resistance. *JBMR Plus*. In press.
4. **Yiran Wang**, Alicia E. Boyd, Lillian Rountree, Yi Ren, Kate Nyhan, Ruchit Nagar, Jackson Higginbottom, Megan L. Ranney, Harsh Parikh, and Bhramar Mukherjee. A Framework for Data Equity in Public Health. *JAMA Health Forum*. Revise and resubmit.
5. **Yiran Wang**, Yi-Ting Lin, Sean McGrath, John D. Meeker, Sung Kyun Park, Joshua L. Warren, and Bhramar Mukherjee. An Overview of Statistical Methods for Mediation Analysis with Mixtures of Environmental Exposures. *Environment International*. Submitted. [\[arXiv\]](#)
6. **Yiran Wang**, Martin Lysy, and Audrey Béliveau (2025). Rapid Scaling of Compositional Uncertainty from Sample to Population Levels. *Statistical Methods & Applications*. Submitted. [\[arXiv\]](#)
7. Maxwell Salvatore, **Yiran Wang**, Preeti Syal, Brian Wahl, Harsh Parikh, Vishal Deo, Naveen Kumar Bhatraju, Kaushalya Jayaweera, Nisha Rana, Redoy Ranjan, Fyezah Jehan, Abdullah Yusuf, Karthik Adapa, Mona Duggal, Anurag Agrawal, and Bhramar Mukherjee. The Case for an Integrated Biobanking Initiative in South Asia with Secure and Federated Global Data Access. *The Lancet Regional Health - Southeast Asia*. Submitted.
8. Daniel Y. Dapaah, Shoutaro Arakawa, Gwennyth A. Carroll, **Yiran Wang**, Stewart McLachlin, Mitsuru Saito, and Thomas L. Willett. Does direct oxidative damage of bone collagen contribute to poor human cortical bone tissue fracture resistance? *Journal of Bone and Mineral Research*. Submitted.

Curriculum Vitae

9. Lauren Raymond-King, Sean McGrath, Bhramar Mukherjee, **Yiran Wang**, Harsh Parikh, John Rothen, Pamela R. Soulos, Cary P. Gross, and John W. Kunstman. Distribution of Frailty in Nonmetastatic Pancreatic Ductal Adenocarcinoma and Its Association with Receipt of Curative Intent Pancreatic Resection. *In preparation*.
10. **Yiran Wang**, Martin Lysy, and Audrey Béliveau (2024). Method of Moments Estimation of the Bayesian Credible Interval for Markov Chain Monte Carlo. *Working Paper*.

- PRESENTATIONS
1. “Bayesian Mediation Analysis with Latent Exposure Mixtures” Aug 2025
2025 Joint Statistical Meetings
Nashville, USA
 2. “Plant-Capture Methods for Estimating Population Size from Uncertain Plant Captures” (Invited) Jun 2025
The 38th New England Statistics Symposium
New Haven, USA
 3. “Plant-Capture Methods for Estimating Population Size from Uncertain Plant Captures” Apr 2025
The Bayesian Young Statisticians Meeting 2025
Virtual
 4. “Plant-Capture Methods for Estimating Population Size from Uncertain Plant Captures” Mar 2025
The 2025 ENAR Spring Meeting
New Orleans, USA
 5. “Plant-Capture Methods for Estimating Population Size from Uncertain Plant Captures” (Invited) Jun 2024
The Statistical Society of Canada 2024 Annual Meeting
St. John’s, Canada
 6. “Plant-Capture Methods for Estimating Population Size from Uncertain Plant Captures” Oct 2023
2023 Waterloo Student Conference in Statistics, Actuarial Science and Finance
Waterloo, Canada
 7. “Bayesian Genetic Mark-Recapture Methods for Estimating Seasonal River Run Size of Stock Populations” Aug 2023
2023 Joint Statistical Meetings
Toronto, Canada
 8. “Genetic Mark-Recapture Methods for Estimating Population Size of Stock Populations” May 2023
The Statistical Society of Canada 2023 Annual Meeting
Ottawa, Canada
 9. “Bayesian Genetic Mark-Recapture Methods For Estimating Seasonal River Run Size Of Stock Populations” Apr 2023
EURING Analytical Meeting & Workshop 2023
Virtual
 10. “Genetic Mark-Recapture Methods For Estimating Seasonal River Run Size Of Stock Populations” (Poster) Jun 2022
The 2022 International Society for Bayesian Analysis World Meeting
Montréal, Canada
 11. “Genetic Mark-Recapture Methods For Estimating Seasonal River Run Size Of Stock Populations” Jun 2022
International Statistical Ecology Conference 2022
Virtual

Curriculum Vitae

12. "Genetic Mark-Recapture Methods For Estimating Seasonal River Run Size Of Stock Populations" Jun 2022
The Statistical Society of Canada 2022 Annual Meeting
Virtual
13. "Bayesian Genetic Mark-Recapture Methods For Estimating Seasonal River Run Size Of Stock Populations" Jun 2021
The Statistical Society of Canada 2021 Annual Meeting
Virtual
14. "Bayesian Genetic Mark-Recapture Methods For Estimating Seasonal River Run Size Of Stock Populations" (Poster) Jun 2021
EURING 2021 Analytical Meeting & Workshop
Virtual
15. "Assessing Integrated Population Model Using Parametric Bootstrap" Feb 2021
Bayesian Club Meeting, University of Waterloo
Virtual
16. "Introduction to Markov Chain Monte Carlo" Jan 2021
Bayesian Club Meeting, University of Waterloo
Virtual
17. "A Simple Simulation about Convergence Diagnostics" Jan 2021
Bayesian Club Meeting, University of Waterloo
Virtual

SERVICE

Event and Organization

- Instructor & Program Coordinator* Mar 2025 - Jul 2025
2025 Big Data Summer Immersion at Yale (BDSY)
- Committee Member* May 2023 - Apr 2024
University of Waterloo Graduate International Student Advisory Committee (ISAC-G)
- Conference Organizing Committee* Sept 2022 - May 2023
The Eleventh Annual Canadian Statistics Student Conference (CSSC)
- Conference Organizing Volunteer* Nov 2021
The 2nd Waterloo Student Conference in Statistics, Actuarial Science and Finance
- Student Representative* Oct 2018 - Apr 2019
Department of Statistics, University of California Irvine

Mentorship

- Mentor* Jan 2024 - Apr 2024
University of Waterloo Women in Mathematics Directed Reading Program
- Mentor* May 2023 - Aug 2023
University of Waterloo Women in Mathematics Directed Reading Program
- Mentor Volunteer* Apr 2021, Apr 2022, Apr 2023, Apr 2024
ASA DataFest

Curriculum Vitae

PROFESSIONAL DEVELOPMENT	Intermediate Teaching Workshops: <i>Participation and Equity</i> Yale University	2025
	Intermediate Teaching Workshops: <i>Classroom Observation</i> Yale University	2025
	Intermediate Teaching Workshops: <i>Teaching International Students</i> Yale University	2025
	Advanced Teaching Workshops: <i>Lecturing for Active Engagement</i> Yale University	2025
	Intermediate Teaching Workshops: <i>Leading Effective Discussions</i> Yale University	2025
	Canadian Statistical Sciences Institute CRT Workshop: <i>Modern Methods in Survey Sampling</i> University of Ottawa	2024
	Canadian Ecological Forecasting Initiative Summer School: <i>Forecasting for Decision-Making: An Epidemiological & Ecological Perspective</i> The Fields Institute for Research in Mathematical Sciences	2023
	Workshop: <i>NIMBLE virtual short course</i> NIMBLE Development Team	2023
	Canadian Statistical Sciences Institute CRT Summer School: <i>Modern Methods in Survey Sampling</i> University of Ottawa	2022

AWARDS

University of Waterloo

- Doctoral Thesis Completion Award Apr 2024
- Women in Mathematics Directed Reading Program Distinguished Service Award Apr 2024
- Women in Mathematics Directed Reading Program Mentorship Award Aug 2023, Apr 2024
- Graduate Student Research Dissemination Award May 2023, Mar 2024
- The Eleventh Annual Canadian Statistics Student Conference Travel Award May 2023
- Graduate Studies Conference Assistantship May 2022
- University of Waterloo Senate Graduate Scholarship Mar 2022
- Waterloo Special Graduate Student Entrance Award Sep 2019

Donghua University

- Donghua University Outstanding Graduate Jun 2017
- Donghua University Merit Scholarship Dec 2016
- Donghua University Tianji Scholarship Dec 2016
- Donghua University Social Work Excellence Scholarship Dec 2015, Dec 2016
- Donghua University Outstanding Student Leader Dec 2015, Dec 2016
- 1st Prize in Donghua University Mathematical Modelling Contest Jun 2015

Other Awards

- 2025 Joint Statistical Meetings Early Career Travel Award Jun 2025

Curriculum Vitae

- Statistical Society of Canada Annual Meeting Student Grant
- May 2024

ACADEMIC	American Statistical Association (ASA)	2017-Present
MEMBERSHIP	Institute of Mathematical Statistics (IMS)	2017-Present
	International Chinese Statistical Association (ICSA)	2020-Present
	Statistical Society of Canada (SSC)	2020-Present
	International Biometric Society (IBS)	2021-Present