

# Ian Zhang

*Curriculum Vitae*

## Contact Information

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## Education

**PhD in Statistics**, University of Toronto *Sep 2026 -*

- Advisors: Joshua Speagle, Thibault Randrianarisoa

**MSc in Statistics**, University of Toronto *Sep 2025 - Jun 2026*

- Advisor: Nancy Reid

**Honours BSc in Statistics/Mathematics**, University of Toronto *Sep 2021 - Jun 2025*

- Advisor: Jun Young Park
- Graduated with high distinction

## Publications and Preprints

†: Corresponding Author;      \*: Equal contribution

### Published

1. Michael A. Kouritzin, **Ian Zhang**<sup>†</sup>, Jyoti Bhadana, Seoyeon Park. Markov processes for enhanced deepfake generation and detection[J]. *AIMS Mathematics*, 2026, 11(4): 11731-11759. doi: 10.3934/math.2026483

### In Progress

1. Aditya Khan, **Ian Zhang** *2026*  
Parametric Hotspot Analysis with the Getis-Ord Statistic
2. **Ian Zhang**<sup>\*,†</sup>, Hanlong Chen<sup>\*</sup>, ..., Howard Chertkow, ..., Malcolm Binns *2026*  
Redundancy-Aware Model Assessment for Component and Cluster Selection in Clinical Subtype Discovery
3. Hanlong Chen<sup>\*</sup>, **Ian Zhang**<sup>\*</sup>, ..., Malcolm Binns *2026*  
Continuous Cognitive Heterogeneity in Dementia: A Severity Factor and an Age-Related Amnesic Axis Without Reproducible Subtypes

4. **Ian Zhang**<sup>†</sup>, Finn Tran, Meredith Franklin 2026  
Spatial Dependence Regularization for Improved Generalization in Climate Downscaling Models
5. **Ian Zhang**<sup>†</sup>, Thibault Randrianarisoa 2026  
Likelihood Tempering to Mitigate Prior Dominance in Variational Posteriors for Bayesian Neural Networks

## Research Experience

- Graduate Research Assistant**, Baycrest Institute/University of Toronto 2025-Present  
Supervisor: Malcolm Binns
- Summer Research Trainee**, McGill University 2025  
Supervisor: Jianguo (Jeff) Xia
- Research Assistant**, University of Alberta 2023-2024  
Supervisor: Mike Kouritzin

## Teaching

### Teaching Assistant

- UofT Statistical Sciences Research Program (UTSSRP)** Summer 2026  
**STA437: Methods of Multivariate Data** Winter 2026  
**MAT137: Calculus with Proofs** Fall 2025 & Winter 2026  
**STA302: Methods of Data Analysis I** Fall 2025

## Presentations

### Conference Talks

- 2026 Joint Statistical Meetings** 2026  
Will be presenting *RAMA: Redundancy-Aware Model Assessment for PCA-Based Clinical Sub-type Discovery*.
- 2026 SSC Annual Meeting in Hamilton** 2026  
Presented *Likelihood Tempering to Mitigate Prior Dominance in Variational Posteriors for Bayesian Neural Networks* in the New Frontiers in Bayesian Analysis session.
- 2025 SSC Annual Meeting in Saskatoon** 2025  
Presented *Markov Processes for Enhanced Deepfake Generation and Detection* in the Probability session.
- Third Joint SIAM/CAIMS Annual Meetings** 2025  
Presented *Markov Processes for Enhanced Deepfake Generation and Detection* in the Machine Learning and Stochastic Processes session.

## Posters

**The Thirteenth Annual Canadian Statistics Student Conference** 2025  
Presented *Comparing Exact and Approximate Inference for Spatial Autocorrelation Tests: A Power Analysis*.

## Honours and Awards

**Anna & Alex Beverly Memorial Fellowship** 2025  
Awarded by University College (University of Toronto) for general proficiency during my undergraduate degree.

**NSERC Undergraduate Student Research Award (x2)** 2023, 2024  
Awarded by the University of Alberta to research Markov process methods for deepfake generation and detection.

**Jack Zwaigenbaum Scholarship** 2022  
Awarded by University College (University of Toronto) for academic excellence in my first year of undergraduate studies.

**Dean's List Scholar (x4)** 2022, 2023, 2024, 2025  
Awarded by the Faculty of Arts and Science (University of Toronto) for maintaining academic excellence every year of my undergraduate degree.

## Grants

**CSSC Travel Grant** 2025  
Awarded to full-time Canadian students presenting a poster or giving a talk at the Canadian Statistics Student Conference.

## Services

### Conferences

**Session chair, 2025 Third Joint SIAM/CAIMS Annual Meetings**  
Chaired the “Machine Learning and Stochastic Processes” session.

## Other

Citizenship: Canadian

Languages Spoken: English (native), Mandarin (native), Japanese (intermediate)

Memberships: Statistical Society of Canada