

# Yueming (Christine) Shen

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## EDUCATION

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### Duke University

*PhD in Statistical Science; Advisor: Surya Tokdar*

*Master of Statistical Science; Advisors: Peter Hoff, Alexander Volfovsky*

- Thesis: Comparison of Bayesian inference methods for probit network models

### The Chinese University of Hong Kong

*Bachelor of Business Administration with Honors*

- Major: Insurance, Financial and Actuarial Analysis; Minor: Statistics, German

### University of Toronto

*International Exchange Student in Actuarial Science*

Durham, US

*Expected Sep 2026*

*Aug 2019 – May 2021*

Hong Kong, China

*Sep 2007 – Jul 2011*

Toronto, Canada

*Sep 2009 – Dec 2009*

## PRESENTATION

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### A Bayesian competing risks model with spatially varying coefficients for readmission risk in elderly patients with upper extremity fractures

- Contributed talk, 2025 Joint Statistical Meetings Aug 2025

### Bayesian model evaluation using p-values

- Poster session, 2024 ISBA World Meeting Jul 2024
- Poster session, 2024 The Bayesian Young Statisticians Meeting Jun 2024

## PUBLICATION

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*Publications may appear under Yueming Shen or Christine Shen*

### Preprints and working papers

- [1] Shen, Y., C. Pean, D. Dunson, and S. Berchuck (2025). “Discovering spatial patterns of readmission risk using a Bayesian competing risks model with spatially varying coefficients”. Under review at the Journal of the American Statistical Association. arXiv: 2511.20616.
- [2] Shen, Y. and S. Tokdar (2026a). “Asymptotic well-calibrated Bayesian p-value using the Kolmogorov-Smirnov statistic”. Submitted to the Annals of Statistics. arXiv: 2504.14077.
- [3] — (2026b). “Bayesian model evaluation with p-values”. Working paper.

### Journal

- [4] Kahan, R., C. Shen, P. Wellborn, A. Lauder, S. Berchuck, H. Javeed, C. Pean, and A. Federer (Jan. 2026). “Artificial Intelligence in Triaging Patient Questions: An Evaluation of a Large Language Model for Distal Radius Fractures”. In: *Journal of the American Academy of Orthopaedic Surgeons* 34.1, e106–e115. DOI: 10.5435/JAAOS-D-25-00456.

## AWARDS AND QUALIFICATIONS

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- ASA-SBSS Student Paper Award 2026
- ISBA World Meeting Best Poster Award 2024
- Duke Statistical Science Department PhD Student BEST Award 2023 – 2024
- Duke Statistical Science Department PhD Student TA of the Year Award 2022 – 2023
- Duke Statistical Science Department Master Student TA of the Year Award 2020 – 2021
- Duke Graduate School Dean’s Research Award Oct 2020
- Chartered Financial Analyst (CFA) May 2018 – May 2019
- Chartered Enterprise Risk Analyst (CERA) Jan 2015 – Dec 2021
- Fellow of the Society of Actuaries (FSA) Mar 2014 – Dec 2021
- CUHK Certificate of Academic Merit Jan 2009
- CUHK Mainland Student Full Admission Scholarship Jul 2007

## RESEARCH EXPERIENCE

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### Duke University

*AI Health Fellowship*

Durham, US

*Jan 2024 – Present*

- Quantitative mentor: Samuel Berchuck, Assistant Professor of the Department of Biostatistics & Bioinformatics; Clinical mentor: Christian Pean, Assistant Professor of Orthopaedic Surgery
- Provided statistical and methodological support for orthopaedic clinical research projects in collaboration with practicing surgeons at Duke Hospital
- Designed and implemented statistical analyses for observational clinical data to study readmission risk of fractures patient, identify key risk factors and underlying spatial patterns
- Communicated statistical findings to clinical collaborators and translated methodological results into clinically interpretable conclusions

## TEACHING EXPERIENCE

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### Duke University

Durham, US

#### Instructor

- Master's Virtual Math & Stat Bootcamp (Summer 2023)
  - Revamped lecture materials to adapt to the virtual format
  - Created over 20 pre-recorded videos on three learning modules: Linear algebra, Calculus, and Probability
- Master's Math & Stat Bootcamp (Summer 2022)
  - Taught five lectures (2–3 hours each) on Probability, Frequentist and Bayesian inference

#### Guest Lecturer

- STA 725 Bayesian Health Data Science (Spring 2025)
  - Instructor: Samuel Berchuck
  - Developed and delivered two lectures on Scalable Gaussian Processes [Lecture 1, Lecture 2].
- STA 440 Case Studies (Spring 2025)
  - Instructor: Fan Li
  - Delivered one lecture on web scraping.

#### Course Enhancement

- STA 602 Bayesian Statistical Modeling (Summer 2023)
  - Instructor: Li Ma
  - Developed two new labs to better align with lecture materials.
- STA 323 / 523 Statistical Computing (Spring 2020)
  - Instructor: Shawn Santo
  - Enhanced the efficiency and flexibility of an R Shiny leaderboard for a prediction competition assignment, by developing functionality to read in submissions, validate inputs, flag errors, compute scores, and visualize both current and historical team performance.

#### Teaching Assistant (TA)

- STA 602 Bayesian Statistical Modeling (Spring 2025, Fall 2020)
  - Instructors: Alex Fisher (Spring 2025), Li Ma (Fall 2020)
  - Master's level course with  $\sim 40$  students. Led lab sessions and held office hours.
- STA 832 Multivariate Analysis (Fall 2023)
  - Instructor: Peter Hoff
  - PhD level course with  $\sim 20$  students. Held office hours and graded assignments.
- STA 732 Statistical Inference (Spring 2023)
  - Instructor: Yuansi Chen
  - PhD level course with  $\sim 20$  students. Held office hours and graded assignments.
- STA 199 Intro to Data Science (Fall 2022, Fall 2021) (**Head TA**)
  - Instructors: Elijah Meyer (Fall 2022), Alex Fisher (Fall 2021)
  - Undergraduate level course with  $\sim 150$  students, 12 TAs (Fall 2022), and  $\sim 90$  students, 5 TAs (Fall 2021)
  - Led lab sessions, held office hours, coordinated TA work assignment, facilitated communications between instructors and TAs, and handled ad-hoc administrative and student-related issues.
- STA 532 Theory of Statistical Inference (Spring 2021)
  - Instructor: Surya Tokdar
  - Master's level course with  $\sim 40$  students. Held office hours and graded assignments.
- STA 360/ 602 Bayesian Statistical Modeling (Summer II 2020)
  - Instructor: Olanrewaju Michael Akande
  - Undergraduate and master's level course with 12 students. Led lab sessions, held office hours, and graded assignments.

- STA 230 Probability (Summer I 2020)
  - Instructor: Henry Kirveslahti
  - Undergraduate level course with  $\sim 40$  students.

## WORK EXPERIENCE

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### **Ernst & Young**

Hong Kong, China

*Manager in Actuarial and Insurance Advisory Services, Life Insurance Team*

*Oct 2017 – Aug 2019*

- Delivered actuarial advisory projects in HKRBC, Insurance Capital Standards and IFRS17
- Managed annual life insurance company actuarial audit projects under PRC GAAP and HKFRS basis

### **Eastspring Investments Hong Kong**

Hong Kong, China

*Investment Analyst, Infrastructure Investment Team*

*Aug 2016 – Oct 2017*

- Executed infrastructure investment deals in private equity, private debt and fund investments
- Built financial models for a \$500 million investment with the International Financial Corporation in emerging markets infrastructure projects, structured as a collateralized debt investment fund

### **Prudential Corporation Asia**

Hong Kong, China

*Senior Analyst, Stochastic Modelling and Strategic Asset Allocation Team*

*Jul 2011 – Jul 2016*

- Signed-off economic assumptions and in-house stochastic simulation file production
- Developed derivatives and alternative assets modelling capacity
- Provided quantitative support on strategic asset allocation projects such as short-term vs long-term hedging, asset and liability duration matching
- Developed automation tools for simulation production which enhances calibration capacity from one single simulation file per week to over 800 simulation files overnight

### **Prudential Hong Kong Limited**

Hong Kong, China

*Secondment, Participating Fund Management Team*

*Nov 2014 – Jun 2015*

- Delivered feasibility study on infrastructure assets investment for the participating business funds

*Secondment, Actuarial Pricing Team*

*Nov 2013 – Jun 2014*

- Revamped and launched a Universal Life product

### **Prudential Corporation Asia**

Hong Kong, China

*Intern, Stochastic Modelling and Strategic Asset Allocation Team*

*Jun 2010 – Dec 2010*