Michael Boyuan Zhu, PhD, ASA

Assistant Professor of Actuarial Science
School of Computing and Data Science
University of Hong Kong

Office | Room 120, Run Run Shaw Building
E-mail | mbzhu@hku.hk
Website | https://michaelzhu.ca

Academic Experience

Assistant Professor of Actuarial Science, University of Hong Kong — 2025 – present

Education

Ph.D. – Actuarial Science, University of Waterloo — 2025

- Supervisor: Prof. Mario Ghossoub
- Thesis: Efficiency and Equilibria in Centralized and Decentralized Insurance Markets

Master of Mathematics – Actuarial Science, University of Waterloo — 2020

- Thesis: Cost Efficient Contingent Claims with Choquet Pricing

Honours Bachelor of Mathematics, University of Waterloo — 2018

- Mathematical Finance, Computer Science Minor

Professional Designation

ASA: Associate of the Society of Actuaries

Research Interests

Actuarial science, quantitative risk management,
game theory, ambiguity and risk uncertainty, behavioral finance

Publications and Manuscripts

Peer-reviewed journal articles

1. **Subgame Perfect Nash Equilibria in Large Reinsurance Markets** (with Maria Andraos, Mario Ghossoub). *Insurance: Mathematics and Economics,* forthcoming. [arXiv]
2. **Efficiency in Pure-Exchange Economies with Risk-Averse Monetary Utilities** (with Mario Ghossoub). *Mathematical Finance*, forthcoming. [arXiv]
3. **Pareto-Optimal Peer-to-Peer Risk Sharing with Robust Distortion Risk Measures** (with Mario Ghossoub, Wing Fung Chong). *ASTIN Bulletin*, 55(3):537-563, 2025. [ ]
4. **Risk-Constrained Portfolio Choice under Rank-Dependent Utility** (with Mario Ghossoub). *Finance and Stochastics*, 29(2):399-442, 2025. [ ]
5. **Stackelberg Equilibria with Multiple Policyholders** (with Mario Ghossoub). *Insurance: Mathematics and Economics*, 116(1):189-201, 2024. [ ]

6. **Pareto-Optimal Insurance with an Upper Limit on the Insurer's Exposure** (with Oma Coke, Mario Ghossoub). *Scandinavian Actuarial Journal*, 2024(3):227-251, 2024. [↗]
7. **Equilibria and Efficiency in a Reinsurance Market** (with Tim Boonen, Mario Ghossoub). *Insurance: Mathematics and Economics*, 113(1):24-49, 2023. [↗]

Pre-publication manuscripts and working papers

1. **Loss Aversion for Decision under Risk** (with Mario Ghossoub). *Working paper.*

Academic Presentations

1. **Efficiency and Equilibria in (Re)Insurance Markets** – Quantact Actuarial and Financial Mathematics Research Seminar (Jan. 2025)
2. **Pareto-Efficient Contracts in Centralized vs. Decentralized Insurance Markets, with an Application to Flood Risk** – 27th International Congress on Insurance: Mathematics and Economics (Jul. 2024)
3. **Equilibria and Efficiency in a Reinsurance Market** – 26th International Congress on Insurance: Mathematics and Economics (Jul. 2023)
4. **Insurance with Heterogeneous Beliefs: A Sequential Game Model** – Waterloo 3rd Student Conference in Statistics, Actuarial Science, and Finance (Oct. 2022)
5. **Risk Sharing with Heterogeneous Beliefs** – University of Amsterdam (Jun. 2022)
6. **Risk-Constrained Portfolio Choice via Quantiles** – Waterloo 2nd Student Conference in Statistics, Actuarial Science, and Finance (Nov. 2021), 56th Actuarial Research Conference (Aug. 2021), 24th International Congress on Insurance: Mathematics and Economics (Jul. 2021)
7. **Cost-Efficient Contingent Claims with Choquet Pricing** – Canadian Operational Research Society Annual Conference (Jun. 2021), University of Waterloo Statistics and Actuarial Science Presentation Day (Feb. 2021)

Professional Service

Conference Co-Chair – 4th WSSAF October 27-28, 2023

- One of two student organizers in charge of the 4th Waterloo Student Conference in Statistics, Actuarial Science and Finance. Duties included contacting external speakers, managing volunteers, event logistics, etc.

Research Mentor – Women in Mathematics (WiM) Directed Reading Program January – April 2023

- Mentored a female undergraduate student from the Faculty of Mathematics as part of the WiM Directed Reading Program. Focused on the topic of economic equilibria from mathematical economics.

Conference Volunteer, Session Chair – 2nd, 3rd WSSAF October 2021, 2022

- Assisted with the 2nd and 3rd editions of the Waterloo Student Conference in Statistics, Actuarial Science and Finance. Reviewed abstracts and served as session chair.

Peer-Review Service

- *ASTIN Bulletin*, *North American Actuarial Journal*, *Scandinavian Actuarial Journal*, *International Review of Economics and Finance.*

Teaching Experience

Sessional Instructor, University of Waterloo

- ACTSC 446/846 – Mathematics of Financial Markets — Fall 2023

Teaching Assistant, University of Waterloo

- ACTSC 971 – Finance 2 — 2021, 2024
- ACTSC 446/846 – Mathematics of Financial Markets — 2020, 2021, 2023
- ACTSC 445/845 – Quantitative Enterprise Risk Management — 2021
- ACTSC 631 – Financial Mathematics III — 2020, 2021, 2022, 2023
- ACTSC 633 – Actuarial Risk Management — 2022
- ACTSC 634 – Quantitative Risk Management — 2020, 2021, 2023
- ACTSC 635 – Professional Communications in Actuarial Science — 2022
- ACTSC 372 – Corporate Finance — 2021, 2022
- STAT 333 – Applied Probability — 2019, 2020
- STAT 231 – Statistics — 2019

Selected Honors and Awards

- James C. Hickman Scholar – SOA — 2022-2025
- Ontario Graduate Scholarship — 2022-2025
- D.A. Sprott Entrance Award – University of Waterloo — 2020
- Actuarial Science Doctoral Entrance Award – University of Waterloo — 2020
- NSERC Undergraduate Student Research Award — 2016

Last updated: Jan. 2026