Ming (Joyce) Qiu

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EDUCATION

The University of Melbourne   Melbourne, Australia

Doctor of Philosophy in Actuarial Studies   Oct. 2019 – Present

- Research interests: Stochastic optimal control, systemic risk, deep learning methods for control problems.

University of California, Berkeley   Berkeley, California

Master of Arts in Statistics   Aug. 2017 – May 2018

- GPA: 3.90/4.00
- Relevant courses: Machine Learning, Advanced Probability, Linear Models.

University of Sydney   Sydney, Australia

Bachelor of Science (Honours) in Mathematical Statistics   Feb. 2013 - Nov. 2016

- First-class Honours: 92.0/100
- Relevant courses: Numerical Methods, Stochastic Processes, Option Pricing.

PUBLICATIONS

Published or Forthcoming in Referred Journals

- **Qiu M,** Jin Z, Li S (2023). Optimal risk sharing and dividend strategies under default contagion: A semi-analytical approach. *Insurance: Mathematics and Economics*, 113, 1-23.
- **Qiu M,** Jin Z, Li S (2022). Optimal dividend strategies with reinsurance under contagious systemic risk. *SIAM Journal on Control and Optimization*, 60(3), 1269-1293.
- Jin Z, **Qiu M**, Tran K, Yin G (2022). A survey of numerical solutions for stochastic control problems: Some recent progress. *Numerical Algebra, Control and Optimization*, 12(2), 213-253.
- Wang N, Jin Z, Siu T, **Qiu M** (2021). Household consumption-investment-insurance decisions with uncertain income and market ambiguity, *Scandinavian Actuarial Journal*, 2021(10), 832-865.

Working Papers

- **Qiu M,** Jin Z, Li S. A semi-analytical hybrid deep learning approach to optimal risk sharing and dividend strategies under competitive effect of defaults
- **Qiu M,** Jin Z, Yang H. Optimal investment and dividend strategies with periodically adjusted reinsurance policies.

RESEARCH EXPERIENCE

Research Assistant, University of Hong Kong   Aug. 2022 – Jul. 2023

- Mentored by Prof. Hailiang Yang on the irreversible reinsurance framework for the dividend optimization problem.

Ph.D. Candidate, University of Melbourne   Oct. 2019 – Present

- Investigated mixed regular-singular control problems under contagious systemic risk analytically.
- Proposed and demonstrated numerical methods for mixed regular-singular control problems, including a hybrid deep learning Markov chain approximation method and a semi-analytical approach.

Honours Project, University of Sydney   Mar. 2016 – Nov. 2016

Bounding Functions for Solutions to Elliptic and Parabolic Problems with Applications in Insurance Mathematics

- Constructed the elliptic and parabolic partial integro-differential equations solved by the infinite-time and finite-time ruin probabilities.
- Formulated the bounding functions for ruin probabilities and compared them with Monte Carlo approximations.

Talented Student Program, University of Sydney   Aug. 2015 – Nov. 2015

Stochastic Processes and Numerical Methods

- Applied Feynman-Kac representations to find the corresponding Dirichlet problems. Solved them analytically and numerically by finite difference method and Monte Carlo approximations.

TEACHING EXPERIENCE

University of Hong Kong   Mar 2023 – Present
Tutor of STAT3905 Introduction to Financial Derivatives
The University of Melbourne   Jul 2020 - Nov 2020, Jul 2021 - Nov 2021
Tutor of ACTL20004 Topics in Actuarial Studies
University of Sydney   Feb 2016 - Jun 2016, Jul 2016 - Nov 2016
Tutor of MATH1001 Differential Calculus
Tutor of MATH1005 Statistics

EMPLOYMENT HISTORY

OneConnect Technology   Shanghai, China
Data Mining Engineering   Aug. 2018 – Oct.2019
- Designed data-driven recommendation systems based on supervised learning algorithms. Modeled customers' wealth and investment preferences by GBDT and targeted potential new customers of financial products and services.

SCHOLARSHIPS AND AWARDS

The Henry Buck Scholarship for 2019, University of Melbourne   Nov 2019
For the student who has the highest overall scholarship score entering the Doctor of Philosophy for the year.
Australian Federation of Graduate Women Prize in 2016, AFGW,   Apr 2017
For the female student who has the highest mark in first class Honours.
Veronica Thomas Prize for 2016, University of Sydney   Apr 2017
For the best Statistics Honours seminar presentation.
The Honours Scholarships, University of Sydney   Feb 2016
For the Honours students who demonstrate outstanding academic performances.
Deans' List of Excellence in Academic Performance, University of Sydney   Jul 2014, 2015
For undergraduate students who demonstrate outstanding academic performances.
Dean of Science Undergraduate Exchange Scholarship, University of Sydney   Nov 2014
For her exchange experience at University of California, Davis and outstanding academic performance (GPA: 4.00/4.00).

SKILLS

- Programming Languages: **Python**, **R, MATLAB, SQL**.
- Passed Financial Risk Management Exam Part I and Part II.
- Passed SOA Exams: P, FM, IFM, STAM, FAM-L and SRM.

REFERENCES

- **Prof. Zhuo Jin**
  Department of Actuarial Studies and Business Analytics, Macquarie University
  Email: zhuo.jin@mq.edu.au
- **Prof. Shuanming Li**
  Centre for Actuarial Studies, Faculty of Business and Economics, The University of Melbourne
  Email: shli@unimelb.edu.au
- **Prof. Hailiang Yang**
  Department of Statistics and Actuarial Science, The University of Hong Kong
  Email: hlyang@hku.hk