Xiyue Han

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Education

2019 – **Doctor of Philosophy in Actuarial Science,** University of Waterloo
Supervisor: Prof. Alexander Schied

2017 – 2018 **Master of Mathematics in Actuarial Science,** University of Waterloo
Supervisor: Prof. Alexander Schied
Thesis: *On the Extrema of Functions in the Takagi Class*

2013 – 2017 **Bachelor of Science in Actuarial Science,** The University of Hong Kong

Publications

1. **Han, X.**, & Schied, A. (2023a). A robust faber–schauder approximation based on discrete observations of an antiderivative. *arXiv preprint arXiv:2211.11907*.
2. **Han, X.**, & Schied, A. (2023b). Estimating the roughness exponent of stochastic volatility from discrete observations of the realized variance. *arXiv preprint arXiv:2307.02582*.
3. **Han, X.**, & Schied, A. (2023c). On laws absolutely continuous with respect to fractional brownian motion. *arXiv preprint arXiv:2306.11824*.
4. **Han, X.**, & Schied, A. (2023d). The estimation of the Hurst roughness exponent based on discrete observations of an antiderivative. *arXiv preprint arXiv:2211.11907*.
5. **Han, X.**, & Schied, A. (2022). Step roots of Littlewood polynomials and the extrema of functions in the Takagi class. *Mathematical Proceedings of the Cambridge Philosophical Society*, *173*, 591–618.
6. **Han, X.**, Schied, A., & Zhang, Z. (2022). A limit theorem for Bernoulli convolutions and the Φ-variation of functions in the Takagi class. *Journal of Theoretical Probability*, *35*, 2853–2878.
7. **Han, X.** (2021). A Gladyshev theorem for trifractional Brownian motion and n-th order fractional Brownian motion. *Electronic Communications in Probability*, *26*, 1–12.
8. **Han, X.**, & Schied, A. (2021). The hurst roughness exponent and its model-free estimation. *arXiv preprint arXiv: 2111.10301*.
9. **Han, X.**, Schied, A., & Zhang, Z. (2020). A probabilistic approach to the Φ-variation of classical fractal functions with critical roughness. *Statistics & Probability Letters*, 108920.

Awards

2022 – 2023 **James C. Hickman Scholar**, Society of Actuaries

2022 **Sportt Award for best PhD proposal**, University of Waterloo

2018 – 2022 **Statistics and Actuarial Science Chair Award**, University of Waterloo

2019 **Best Presentation Award in Waterloo Student Conference in Statistics, Actuarial Science and Finance**, University of Waterloo

Professional Certification

Society of Actuaries — Exam P, FM, LTAM, STAM, IFM, SRM, PA and VEE exams

Presentations

- October 2022 — **The Hurst roughness estimator and its model-free estimation**, The 3rd Waterloo Student Conference in Statistics, Actuarial Science and Finance, University of Waterloo, Waterloo, Canada
- June 2022 — **The Hurst roughness estimator and its model-free estimation**, The 11th World Congress of the Bachelier Finance Society, Online.
- August 2021 — **The Hurst roughness estimator and its model-free estimation**, The 56th Actuarial Research Conference, Online.
- July 2021 — **The Hurst roughness estimator and its model-free estimation**, The 24th International Congress on Insurance: Mathematics and Economics, Online.
- April 2021 — **The Hurst roughness estimator and its model-free estimation**, Waterloo Student Seminar, University of Waterloo, Waterloo, Canada.
- October 2020 — **Extrema of functions in the Takagi class**, The 1st Waterloo Student Conference in Statistics, Actuarial Science and Finance, University of Waterloo, Waterloo, Canada

Teaching Experience

Teaching Assistant at the University of Waterloo

- **2022W** — **STAT 901** Theory of Probability 1, Instructor: Prof. Yi Shen
- **2022S** — **ACTSC 363** Casualty and Health Insurance Mathematics 1, Instructor: Prof. Bin Li
- **2021W** — **ACTSC 846** Mathematics of Financial Markets, Instructor: Prof. Ruodu Wang
- **2021S** — **ACTSC 832** Loss Model 2, Instructor: Prof. Bin Li
- **2020F** — **STAT 330** Mathematical Statistics, Instructor: Prof. Peijun Sang
  ACTSC 846 Mathematics of Financial Markets, Instructor: Prof. Bin Li
- **2020S** — **ACTSC 832** Loss Model 2, Instructor: Prof. Bin Li
  ACTSC 831 Loss Model 1, Instructor: Prof. Bin Li
- **2020W** — **STAT 211** Introductory Statistics and Sampling for Accounting, Instructor: Ms. Dina Dawoud
  MTHEL 131 Introduction to Actuarial Practice, Instructor: Mr. Dave Kohler
- **2019F** — **STAT 334** Probability Models for Business and Accounting, Instructor: Ms. Dina Dawoud
  MTHEL 131 Introduction to Actuarial Practice, Instructor: Mr. Dave Kohler
- **2019S** — **STAT 333** Applied Probability, Instructor: Prof. Pengfei Li
  STAT 330 Mathematical Statistics, Instructor: Prof. Yi Shen
- **2018W** — **STAT 211** Introductory Statistics and Sampling for Accounting, Instructor: Ms. Dina Dawoud
  ACTSC 231 Introductory Financial Mathematics, Instructor: Mr. Keith Freeland

Teaching Experience (continued)

2017F **STAT 202** Introductory Statistics for Scientists, Instructor: Ms. Dina Dawoud
ACTSC 221 Introductory Financial Mathematics (Non-Specialist Level), Instructor: Mr. Brent Matheson