

YANCHAO YANG

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EDUCATION

Ph.D. in Mathematics, University of Illinois Chicago *2024 – present*
Advisor: Prof. Izzet Coskun. Field: algebraic geometry.
Passed preliminary examinations; expected graduation 2029.

M.Sc. in Mathematics and Statistics, University of Melbourne *2022 – 2023*
Thesis: *Smoothness of Density for the Brownian Signature Process*, supervised by Dr. Xi Geng.

Master of Commerce (Actuarial Science), University of Melbourne *2019 – 2020*

Bachelor of Commerce (Actuarial Science), University of Melbourne *2015 – 2018*
with Concurrent Diploma in Statistics

RESEARCH INTERESTS

Algebraic geometry. Earlier work in stochastic analysis (rough path theory, Malliavin calculus).

RESEARCH EXPERIENCE

Smoothness of density for the Brownian signature process *2022 – 2023*
with Dr. Xi Geng, University of Melbourne. Studied the existence and smoothness of densities for the truncated signature of Brownian motion via Malliavin calculus.

Research Intern, Medical Data Science *07/2022 – 12/2022*
Walter and Eliza Hall Institute of Medical Research, Melbourne, Australia. Applied Uniform Manifold Approximation and Projection (UMAP) to biological data, supervised by Dr. Tom Weber.

Dimension reduction of a vine copula framework for cyber-risk insurance *2019 – 2020*
with Prof. Johnny Li, University of Melbourne. Used the graphical lasso to reduce the dimension of vine copula dependence models for cyber-risk portfolios.

TALKS

MATRIX–AMSI PhD Student Symposium *2023*
Student speaker, on rough path theory.

TEACHING EXPERIENCE

Teaching Assistant, University of Illinois Chicago *08/2024 – present*
Calculus, Linear Algebra.

Teaching Assistant, University of Melbourne *02/2023 – 06/2024*
Calculus 1, Linear Algebra.

PROFESSIONAL QUALIFICATIONS

- CFA Level I (passed)
- Institute and Faculty of Actuaries (IFoA), Part 1 examinations
- Principles of Actuary Program (Data Analytics), Actuaries Institute of Australia

SKILLS

- **Programming:** Python (NumPy, pandas, scikit-learn, Matplotlib), R (ggplot2, dplyr, Shiny, R Markdown, knitr), MATLAB
- **Tools:** L^AT_EX, Mathematica, Git
- **Languages:** Mandarin Chinese (native), English (fluent)