Yunxiu Zhou

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RESEARCH INTERESTS

Systemic risk and financial stability; complex adaptive systems; contagion and network dynamics; technological change in financial infrastructure.

EDUCATION

Princeton University Princeton, NJ, USA

M.A. in Operations Research and Financial Engineering 2018 – 2021

Selected coursework: Stochastic Calculus; Probabilistic Theory of Network Games; Statistical Learning; Probability in High Dimensions; Modern Control; Probability Theory.

The Chinese University of Hong Kong Hong Kong

B.Eng. in Systems Engineering and Engineering Management; B.B.A. in Financial Engineering 2013 – 2018

B.Eng.: First Class Honours, ranked 1st of 92 in the major (major GPA 3.954/4.00). B.B.A.: Second Class Honours, Upper Division. Cumulative GPA 3.736/4.00.

University of Zurich, Blockchain Center Zurich, Switzerland

Deep Dive into Blockchain summer school 2023, 2024

PUBLICATIONS

Sedlmeir, J., & **Zhou, Y.** (2026). Mining. In *Elgar Encyclopedia of Cryptocurrencies, Blockchain and DLT* (pp. 140–145). Edward Elgar. https://doi.org/10.4337/9781035339969.00034

Zhou, Y., & Papageorgiou, O. (2025). AI-DeFi systemic risk: A complex adaptive system framework. *2025 7th Conference on Blockchain Research & Applications for Innovative Networks and Services (BRAINS)*. https://doi.org/10.1109/BRAINS67003.2025.11302949 (Presented at BRAINS, Zurich, 2025.)

Bizyaeva, A., Arango, M. O., **Zhou, Y.**, Levin, S., & Leonard, N. E. (2024). Active risk aversion in SIS epidemics on networks. *Proceedings of the American Control Conference*, 4428–4433. https://doi.org/10.23919/ACC60939.2024.10644997

Zhou, Y., Levin, S. A., & Leonard, N. E. (2020). Active control and sustained oscillations in actSIS epidemic dynamics. *IFAC-PapersOnLine*, 53(5), 807–812. https://doi.org/10.1016/j.ifacol.2021.04.175 (Presented at the IFAC Workshop on Cyber-Physical & Human Systems, 2020.)

WORKING PAPERS

Sedlmeir, J., **Zhou, Y.**, Papageorgiou, O., & Fridgen, G. (2024). The imminent (and avoidable) security risk of Bitcoin halving. *FutureFinTech Working Paper Series*. https://doi.org/10.2139/ssrn.4801113. Revised manuscript submitted for publication under the title "Mining instability and security implications of Bitcoin halving."

Brennecke, M., Sedlmeir, J., **Zhou, Y.**, & Fridgen, G. Designing decentralized cross-organizational data-driven processes in the financial sector: Euribor. Working paper.

RESEARCH EXPERIENCE

University of Luxembourg, Interdisciplinary Centre for Security, Reliability and Trust (SnT) Luxembourg

Doctoral Researcher, FINATRAX Research Group 2024 – 2026

- Investigated institutional applications of blockchain across financial infrastructure, digital asset security, and decentralized systems.
- Analyzed blockchain security and systemic risk through theoretical modeling and simulation, including Bitcoin's halving mechanism and AI-driven risk propagation in DeFi.
- Researched privacy-preserving computation for financial institutions, including multi-party computation for confidential and verifiable Euribor benchmark calculation.

Princeton University Princeton, NJ, USA

Researcher, Leonard and Levin Research Groups 2019 – 2021

- Investigated epidemic contagion and collective behavior in networked systems, examining how individual risk sensitivity and adaptive behavior shape collective dynamics.
- Studied active control and risk-sensitive behavior in SIS epidemic models, contributing to research on sustained oscillations and active risk aversion in network epidemics.

The Chinese University of Hong Kong Hong Kong

Lead Undergraduate Researcher, Financial Engineering Laboratory 2016 – 2017

- Studied cardinality-constrained portfolio selection and developed heuristics based on multi-factor models and optimization algorithms that outperformed the benchmark by 6%.

SELECTED TALKS AND PRESENTATIONS

"Control of Adaptive Contagion Processes on Networks." Leonard Lab, Princeton University, 2021.

"Collective Dynamics." Department of Operations Research and Financial Engineering, Princeton University, 2020.

"Exploring complexity with agent-based modelling." Research Methods in Information Systems Engineering (REMISE) Lecture Series, University of Luxembourg, 2024.

"Towards a blockchain-based ecosystem for museums." Poster, with Claudio J. Tessone. CfC St. Moritz Academic Research Track (CfC-SMART24), St. Moritz, Switzerland, 2024.

PROFESSIONAL EXPERIENCE AND LEADERSHIP

Yunxiu Zhou Information Technology Consultancy

Founder (sole proprietorship) 2026 – present

- Assessed blockchain infrastructure and settlement solutions, focusing on technical feasibility, maturity and cost.

Ziyun Pavilion Yixing, China

Digital platform project lead 2021 – 2023

- Led planning and technology assessment for digital provenance and traceability applications for artworks.

University Scholars Leadership Symposium Bangkok, Thailand

International delegate and volunteer 2017

- Spoke on gender equality and women's empowerment to 4,300+ young leaders; led community service projects.

HONORS AND SCHOLARSHIPS

Hong Kong Special Administrative Region Government Scholarship (2016); Hong Kong–APEC Scholarship (2016); Beta Gamma Sigma (2018).

SKILLS AND LANGUAGES

Programming and tools: Python, R, MATLAB, SQL, LaTeX.

Research methods: Mathematical modeling, dynamical systems and stability analysis, computational simulation, network analysis, complex systems, agent-based modeling.

Languages: Mandarin (native); English (fluent); Cantonese (conversational); French (basic).