Yingli Wang

naturesky1994@gmail.com | github.com/gagawjbytw

Research Interests: Applied Probability, Markov Chain Monte Carlo, Stochastic Optimization, Financial Engineering

Education

Shanghai University Shanghai,China
Bachelor of Science, Mathematics and Applied Mathematics *2013.9 - 2017.7*

- Main courses: Advanced Calculus, Advanced Algebra, Real and Complex Analysis, Functional Analysis, ODE, PDE, Probability Theory, Mathematical Statistics, Stochastic Processes, Operations Research, Stochastic Operations Research.

Shanghai University of Finance and Economics Shanghai,China
Master of Philosophy, Probability Theory and Mathematical Finance *2019.9 - 2022.7*

- Main courses: Advanced Probability Theory, Stochastic Calculus, Econometrics, Stochastic Calculus in Finance.
- Awards: Second Prize of 2019,2020 and 2021 SUFE Graduates' Academic Scholarship.
- Enter the final of 2021 Alibaba Global Mathematics Contest (Top 1% of all participants)
- https://damo.alibaba.com/events/320230917169493125940816 56?language=zh

Shanghai University of Finance and Economics Shanghai,China
Ph.D, Probability Theory and Mathematical Finance *2022.9 - 2026.6*

- Main courses: Numerical Methods in Financial Models.
- Awards: Second Prize of 2022,2023 SUFE Graduates' Academic Scholarship.

Experience

School of Mathematical Sciences, Fudan University Shanghai, China
Postdoctoral Fellow, Department of Financial Mathematics and Control Science *2026.6 - Present*

Teaching Experience

Shanghai University of Finance and Economics Shanghai, China
Teaching Assistant *Fall 2019 – Fall 2023*

- Linear Algebra (undergraduate course), Fall 2019.
- Calculus (undergraduate course), Spring 2020.
- Probability Theory (undergraduate course), Fall 2020, Spring 2023..
- Stochastic Processes (undergraduate course), Spring 2021 and Fall 2021.
- Probability Theory and Stochastic Processes (master's-level course), Fall 2022, Fall 2023.

Talks

The 2nd National Mathematics Frontier Doctoral Academic Exchange Forum Beijing, China
Speaker (Peking University; Probability, Statistics, and Financial Mathematics Session) *1st November 2024*

- Title: On the limiting behavior of discrete Hawkes Processes and its Application
- Details: https://www.math.pku.edu.cn/kxyj/xzky/162204.htm

Published and Accepted Papers

- **Wang, Y.**, Tu, C., Wang, X., and Zhu, L.: Accelerating constrained sampling: A large deviations approach. ***Journal of Machine Learning Research***, 27(118):1–61, 2026. . [First Author]
- Cai, C.; He, P.; Wang, Q.; and **Wang, Y.**: Scaling limit of heavy-tailed nearly unstable cumulative INAR(∞) processes and rough fractional diffusions. ***Methodology and Computing in Applied Probability***, 28(13), 2026. doi:10.1007/s11009-026-10248-z. [Corresponding Author and Primary Contributor]
- **Wang, Y.** and He, P.: Precise deviations for discrete marked Hawkes processes. ***Communications in Statistics—Theory and Methods***, 55(15):5040–5061, 2026. [First Author]
- **Wang, Y.**, Cui, Z., and Zhu, L.: Rough Heston model as the scaling limit of bivariate cumulative heavy-tailed INAR processes: Weak-error bounds and option pricing. *arXiv:2503.18259*, 2025. To appear in ***SIAM Journal on Financial Mathematics***. [First Author]

Preprints

- Ali, P.; Wang, X.; **Wang, Y.**; and Zhu, L.: Accelerating Non-Smooth and Heavy-Tailed Sampling. *arXiv:2610.11139*, 2026. Preprint. [Alphabetic order]
- **Wang, Y.**, Xu, W., and Zhu, L.: A Hawkes Microfoundation for Multitype Inverse Gaussian Subordinators. *arXiv:2610.10525*, 2026. Preprint. [First Author]
- Tu, C.; Wang, X.; **Wang, Y.**; Zhang, X.; and Zhu, L.: Reflected Anchored Langevin Algorithms. *arXiv:2610.09522*, 2026. Preprint. [Alphabetic order]
- **Wang, Y.** and Zhu, L.: Global convergence of third-order Langevin dynamics for non-convex optimization via simulated annealing. *arXiv:2609.28611*, 2026. Preprint. [First Author]
- **Wang, Y.** and Zhu, L.: Moderate Deviations for Nonlinear Hawkes Processes. *arXiv:2609.10203*, 2026. Preprint. [First Author]
- **Wang, Y.** and Wang, X.: Variance-Optimal Hedging in the Rough Hawkes–Heston Model. *arXiv:2609.08541*, 2026. Preprint. [First Author]
- Lv, W.; Wang, X.; **Wang, Y.**; and Zhu, L.: Improved Analysis for Hessian-free High-resolution Monte Carlo Sampling. *arXiv:2608.25052*, 2026. Preprint.
- **Wang, Y.**, Wu, Y., and Zhu, L.: Microstructural Foundation for the Rough Hawkes–Heston Model. *arXiv:2608.07709*, 2026. Preprint. [First Author]
- **Wang, Y.** and Zhu, L.: An Eyring–Kramers Law for the Hypoelliptic Third-Order Langevin Diffusion. *arXiv:2607.20882*, 2026. Submitted. [First Author]
- He, P.; Li, X.; **Wang, Y.**; and Zhu, L.: Weak Equilibrium Measures and Capacity–Hitting Identities for the Hypoelliptic Third-Order Langevin Diffusion. *arXiv:2607.19752*, 2026. Submitted. [Corresponding Author]
- Ni, B.; Wang, X.; **Wang, Y.**; and Zhu, L.: Variance Reduction for Stochastic Gradient Generalized Non-reversible Langevin Monte Carlo Algorithms. *arXiv:2606.28808*, 2026. Submitted. [Alphabetic order]
- Wang, X., **Wang, Y.**, and Zhu, L.: Sampling non-log-concave densities via Hessian-Free High-Resolution dynamics. *arXiv:2601.02725*, 2026. Submitted. Major revision at ***The Annals of Applied Probability***. [Corresponding Author]

Professional Service

- Reviewer for *Bernoulli*, *Statistics & Probability Letters*, *Probability in the Engineering and Informational Sciences*, *Methodology and Computing in Applied Probability*, and *Journal of Mathematical Analysis and Applications*.

Technical Skills

Languages: Chinese (Native), English
Developer Tools: Python (PyTorch, Pandas), Matlab, C++
AI Tools: Codex
Office Skills: MS Office, LaTeX