

Yinbin Han

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EDUCATION

Stanford University Doctor of Philosophy, Management Science and Engineering <i>Advisors: Renyuan Xu (Stanford), Meisam Razaviyayn (USC)</i>	Sep 2025 – Dec 2027 (Expected)
New York University Ph.D. Student, Finance and Risk Engineering	Sep 2024 – Aug 2025
University of Southern California Ph.D. Student, Industrial and Systems Engineering	Aug 2021 – Aug 2024
Chinese University of Hong Kong, Shenzhen B.S. Mathematics, Rank 1/71	Sep 2017 – Jun 2021
University of California, Berkeley Exchange Student	Jan 2020 – May 2020

INDUSTRIAL EXPERIENCE

Meta Research Scientist Intern	May 2024 – Aug 2024
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RESEARCH INTERESTS

My vision is to pioneer **trustworthy generative AI** systems for complex, high-stakes decision-making under uncertainty. I take a principled view of generative modeling, grounding empirical architectures in **statistical learning theory**, **optimization** and **stochastic control/reinforcement learning** to establish provable guarantees on sample efficiency, convergence, and constraint enforcement. Applied across **financial markets** and **operations research**, my research transforms generative models into scalable, real-time solutions for dynamic option hedging, portfolio risk management, and constrained optimization.

WORKING PAPERS

- Y. Han, J. Zhang, M. Torres, F. Acero, and R. Xu. “Diffusion Models for Dynamic Volatility Surface Generation and Data-driven Hedging.” Submitted to *ACM International Conference on AI in Finance*, 2026
- H. Cao, M. Chen, Y. Han, and R. Xu. “Diffusion Models for Adaptive Sequential Data Generation.” Submitted to *Operations Research*, 2026. **Finalist, 2026 INFORMS Finance Section Best Student Paper.**
 - Short version accepted by *NeurIPS Workshop on ML×OR*, 2025.
- Y. Han, and M. Razaviyayn. “CREAM: A Smoothed Augmented Lagrangian Method for Stochastic Nonconvex Optimization with Robust Constraints.” Submitted to *SIAM Journal on Optimization*, 2026.
 - Short version accepted by *NeurIPS workshop on Constrained Optimization for Machine Learning*, 2025.
- Y. Han, H. Jin, R. Xu, and Y. Yang. “Fine-tuning of Diffusion Models via Quadratic BSDE.” In preparation, 2026.
- E. Candès, Y. Han, P. Li, and R. Xu. “Distillation of Diffusion Models via W-flow.” In preparation, 2026.
- J. Blanchet, Y. Han, C. Xie, and R. Xu. “Generative Diffusion Models for Constrained Optimization Problems.” In preparation, 2026.

JOURNAL PUBLICATIONS

1. Y. Han, M. Razaviyayn, and R. Xu. “Policy Gradient Converges to the Globally Optimal Policy for Nearly Linear-Quadratic Regulators.” *SIAM Journal on Control and Optimization*, 2025.
 - Short version accepted by *NeurIPS Workshop Optimization for Machine Learning*, 2022.
2. Y. Han and Z. Wang. “Optimal Switching Policy for Batch Servers.” *Operations Research Letters*, 2023.

CONFERENCE PUBLICATIONS

1. Y. Han, M. Razaviyayn, and R. Xu. “Stochastic Control for Fine-tuning Diffusion Models: Optimality, Regularity, and Convergence.” *International Conference on Machine Learning (ICML)*, 2025.
2. Y. Han, M. Razaviyayn, and R. Xu. “Neural Network-based Score Estimation in Diffusion Models: Optimization and Generalization.” *International Conference on Learning Representations (ICLR)*, 2024.
 - Short version accepted by *NeurIPS workshop on Diffusion Models*, 2023.
 - Extended version submitted to *Mathematics of Operations Research*, 2026.

INVITED TALKS

- Workshop on “Mathematical Foundations of Diffusion Model for Efficient Sequential Data Modeling,” IMSI, University of Chicago Aug 2026
- SIAM Conference on Optimization (OP26), Edinburgh Jun 2026
- INFORMS Optimization Society Conference, Atlanta Mar 2026
- AFTLab PhD Student Workshop, Stanford Mar 2026
- INFORMS Annual Meeting, Atlanta Oct 2025
- International Conference on Continuous Optimization, Los Angeles Jul 2025
- INFORMS Applied Probability Society Conference, Atlanta Jun 2025
- Advances in Stochastic Control and Reinforcement Learning, Banff Apr 2025
- INFORMS Annual Meeting, Seattle Oct 2024
- INFORMS Optimization Society Conference, Houston Mar 2024
- INFORMS Annual Meeting, Phoenix Oct 2023
- INFORMS Annual Meeting, Indianapolis Nov 2022

POSTER PRESENTATIONS

- NeurIPS Workshop ML×OR, San Diego Dec 2025
- NeurIPS Workshop on Constrained Optimization for Machine Learning, San Diego Dec 2025
- International Conference on Machine Learning, Vancouver Jul 2025
- Yale Sampling Conference, New Haven Oct 2024
- International Conference on Learning Representations, Vienna May 2024
- NeurIPS 2023 Workshop on Diffusion Models, New Orleans Dec 2023
- NeurIPS Workshop OPT2022, New Orleans Dec 2022

ORGANIZERS	• Session co-chair at INFORMS Annual Meeting 2026	Nov 2026
	• Co-organizer of NeurIPS 2025 Workshop on Generative AI in Finance	Dec 2025
	• Session co-chair at International Conference on Continuous Optimization	July 2025
	• Co-organizer of the NYC Brown Bag Reading Group on Foundations of Generative AI	Sep 2024
	• Session co-chair at INFORMS Optimization Society Conference	Mar 2024
REVIEWERS	• Journals: SIAM Journal on Control and Optimization, European Journal of Operational Research, Finance and Stochastics, Journal of the American Statistical Association, Journal of Machine Learning Research (JMLR), Digital Finance	
	• Conferences: International Conference on Learning Representations (ICLR), International Conference on Machine Learning (ICML), Neural Information Processing Systems (NeurIPS), International Conference on Artificial Intelligence and Statistics (AISTATS), Conference on Uncertainty in Artificial Intelligence (UAI), Association for the Advancement of Artificial Intelligence (AAAI).	
PROFESSIONAL MEMBERSHIP	• Institute for Operations Research and the Management Sciences (INFORMS)	
	• Applied Probability Society (APS)	
	• Member, Society for Industrial and Applied Mathematics (SIAM)	
TEACHING EXPERIENCE	NYU, Teaching Assistant	
	• FRE-GY 5020 & 5030: Bootcamp	Summer 2025
	• FRE-GY 6233: Stochastic Calculus and Option Pricing	Spring 2025
	• FRE-GY 9073: Stochastic Systems and Modern ML Theory	Fall 2024
	USC, Teaching Assistant	
	• ISE 530: Optimization Methods for Analytics	Fall 2023, Spring 2024
	CUHKSZ, Undergraduate Student Teaching Fellow	
	• MAT2002: Ordinary Differential Equations	Spring 2021
	• BIO2001: General Biology	Summer 2019
AWARDS & HONORS	• Finalist, INFORMS Finance Section Best Student Paper	2026
	• ICCOPT 2025 Student Travel Grant	Jun 2025
	• Yale Sampling Conference Student Travel Grant	Oct 2024
	• National Scholarship of China	2020
	• Academic Performance Scholarship, CUHKSZ	2018, 2019, 2020
	• Dean's List, CUHKSZ	2018, 2019, 2020
TECHNICAL SKILLS	Programming Languages:	
	• Skilled in agentic AI tools (Claude Code, Codex) and harness engineering	
	• Proficient in Python, Numpy, Pandas, PyTorch, R, and MATLAB	
	• Familiar with Java, C/C++, MySQL	
	• Experience with Hadoop, Spark, and CUDA	