

Xingyu Wang

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RESEARCH INTERESTS

- Rare Event Analysis, Large Deviations, Metastability, Heavy Tails
- Machine Learning
- Stochastic Simulation
- Self-Exciting Processes

EMPLOYMENT **University of Amsterdam, Amsterdam School of Economics** Amsterdam, NL

- Postdoc Researcher, [Quantitative Economics](#) 2024 - Present
Hosts: [Roger J.A. Laeven](#), [Bert Zwart](#)

EDUCATION **Northwestern University, McCormick School of Engineering** Evanston, IL, US

- Ph.D. in [Industrial Engineering and Management Sciences](#) 2018 - 2024
Advisor: [Chang-Han Rhee](#)
- M.S. in [Analytics](#) 2016 - 2017

Peking University Beijing, China

- B.S. in Psychology and Applied Mathematics 2011 - 2016

JOURNAL PUBLICATIONS **Strongly Efficient Rare-Event Simulation for Regularly Varying Lévy Processes with Infinite Activities** [[preprint](#)]
Xingyu Wang, Chang-Han Rhee
To appear at *Mathematics of Operations Research*; [arXiv:2309.13820](#)

SUBMITTED AND WORKING PAPERS **Large Deviations and Metastability Analysis for Heavy-Tailed Dynamical Systems** [[preprint](#)]
($\alpha - \beta$: ALPHABETICAL AUTHORSHIP) Xingyu Wang, Chang-Han Rhee
Major Revision at *Annals of Applied Probability*; [arXiv:2307.03479](#)
George Nicholson Student Paper Competition, Second Place, 2023

Tail Asymptotics of Cluster Sizes in Multivariate Heavy-Tailed Hawkes Processes [[preprint](#)]
($\alpha - \beta$) Jose Blanchet, Roger J. A. Laeven, Xingyu Wang, Bert Zwart
Major Revision at *Annals of Applied Probability*; [arXiv:2503.01004](#)

Sample Path Large Deviations for Multivariate Heavy-Tailed Hawkes Processes and Related Lévy Processes [[preprint](#)]
($\alpha - \beta$) Jose Blanchet, Roger J. A. Laeven, Xingyu Wang, Bert Zwart
Major Revision at *Bernoulli*; [arXiv:2503.01004](#)

Global Dynamics of Heavy-Tailed SGDs in Nonconvex Loss Landscape: Characterization and Control [[preprint](#)]
Xingyu Wang, Chang-Han Rhee
Submitted to *Operations Research*; [arXiv:2510.20905](#)

Last Update: May 15, 2026

CONFERENCE
PAPERS

Multi-agent Multi-armed Bandit with Fully Heavy-tailed Dynamics [[preprint](#)]

Xingyu Wang, Mengfan Xu
Winter Simulation Conference (WSC), 2025

Importance Sampling Strategy for Heavy-Tailed Systems with Catastrophe Principle [[pdf](#)]

Xingyu Wang, Chang-Han Rhee
Winter Simulation Conference (WSC), 2023

Eliminating Sharp Minima from SGD with Truncated Heavy-Tailed Noises [[pdf](#)]

Xingyu Wang, Sewoong Oh, Chang-Han Rhee
International Conference on Learning Representations (ICLR), 2022
Nemhauser Prize for Best Student Paper, 2022

Keyword-Based Topic Modeling and Keyword Selection [[pdf](#)]

Xingyu Wang, Lida Zhang, Diego Klabjan
IEEE Big Data, 2021

Efficient Rare-Event Simulation for Multiple Jump Events in Regularly Varying Lévy Processes with Infinite Activities [[pdf](#)]

Xingyu Wang, Chang-Han Rhee
Winter Simulation Conference (WSC), 2020

Competitive Multi-Agent Inverse Reinforcement Learning with Sub-Optimal Demonstrations [[pdf](#)]

Xingyu Wang, Diego Klabjan
International Conference on Machine Learning (ICML), 2018

HONORS AND
AWARDS

- **Visit Grants**, Danish Data Science Academy 2026
- **Nemhauser Best Dissertation Prize**, Northwestern University 2025
- **George Nicholson Student Paper Competition, Second Place**, INFORMS 2023
- **Terminal Year Fellowship**, Northwestern University 2023
- **Nemhauser Prize for Best Student Paper**, Department of Industrial Engineering and Management Sciences, Northwestern University 2022
- **Benjamin A. Sachs Graduate Fellowship**, Northwestern University 2022
- **Arthur P. Hurter Award for Academic Excellence among First Year Graduate Students**, Department of Industrial Engineering and Management Sciences, Northwestern University 2019
- **Lee Wai Wang Scholarship**, Department of Psychology, Peking University 2015
- **National Scholarship for Undergraduates**, Department of Psychology, Peking University 2013

INVITED
PRESENTATIONS

Large Deviations for Multivariate Heavy-Tailed Hawkes Processes

- INFORMS Annual Meeting, Atlanta, GA Oct, 2025
- Seminar at School of Mathematics and Statistics, Beijing Institute of Technology Apr, 2025
- Stochastic Seminars at Korteweg-de Vries Institute for Mathematics, Amsterdam, NL Feb, 2025

Sharp Characterization and Control of Global Dynamics of SGDs with Heavy Tails

- University of Copenhagen, Statistics Seminar Sep, 2025
- Monte Carlo Methods 2025, Chicago, IL July, 2025
- Applied Probability Society Conference 2025, Atlanta, GA July, 2025
- Bayes Comp 2025, Singapore Jun, 2025
- Data-Driven Queueing Challenges Conference, Eindhoven, NL Nov, 2024
- INI Satellite Programme on Heavy Tails in Machine Learning, London, UK Apr, 2024
- Cornell University, ORIE, Ithaca, NY Feb, 2024
- University of Pittsburgh, Industrial Engineering, Pittsburgh, PA Jan, 2024
- SNAPP Seminar, Lightning Talk Session, Virtual [video] Dec, 2023

Importance Sampling Strategy for Heavy-Tailed Systems with Catastrophe Principle

- Winter Simulation Conference (Advanced Tutorial), San Antonio, TX Dec, 2023

Large Deviation and Metastability Analysis for Heavy-Tailed Dynamical Systems

- Neurips 2023, Heavy Tails in ML Workshop (Poster), New Orleans, LA Dec, 2023
- INFORMS Annual Meeting, Phoenix, AZ Oct, 2023
- Cornell ORIE Young Researchers Workshop, Ithaca, NY Oct, 2023

Eliminating Sharp Minima from SGD with Truncated Heavy-Tailed Noises

- INFORMS Annual Meeting, Phoenix, AZ Oct, 2023
- Applied Probability Society Conference 2023, Nancy, France Jun, 2023
- INFORMS Annual Meeting, Indianapolis, IN Oct, 2022
- International Conference on Learning Representations (2022), Virtual Apr, 2022
- DeepMath (2021), Virtual Nov, 2021

Efficient Rare-Event Simulation for Multiple Jump Events in Regularly Varying Lévy Processes with Infinite Activities

- Winter Simulation Conference, Virtual Dec, 2020
- INFORMS Annual Meeting, Virtual Nov, 2020

TEACHING
EXPERIENCE

Theses Supervisor

- UvA, Master's Theses, Actuarial Science and Mathematical Finance 2025, 2026
- UvA, Bachelor's Theses, Actuarial Science 2025, 2026

Instructor

- IEMS Bootcamp (Probability) for PhD Students 2022 Fall, 2023 Fall

Teaching Assistant

- UvA Introduction to Data Science 2025
- UvA Non-Life Insurance: Statistical Techniques and Data Analytics 2024, 2025
- NU IEMS 317 Discrete Event Systems Simulation 2022 Winter; 2021 Winter
- NU IEMS 315 Stochastic Models 2021 Spring, Fall; 2020 Spring, Fall

Course Grader

- NU OPNS 450 Decision Models & Prescriptive Analytics 2022 Winter
- NU IEMS 435 Stochastic Simulation 2020 Winter

SERVICES

- Referee: *Operations Research, Management Science, INFORMS Journal on Computing, Mathematics of Operations Research, SIAM Journal on Optimization, Journal of Machine Learning Research, Communications Physics, Computers and Operations Research, Journal of Simulation, ICML (2025), Winter Simulation Conference (2023, 2025),*
- Volunteer: *NU MORE-REACH panel (2024)*
- Webmaster: *Stochastic Networks, Applied Probability, and Performance (SNAPP) seminar (2023 - 2024)*
- Mentor: *1st-year mentorship program at NU INFORMS Student Chapter (2020, 2021)*

INDUSTRIAL
EXPERIENCE

Graduate Student Analytics Consultant, Chicago Park District

Chicago, IL
Oct 2016 - May 2017

Data Analyst Intern, 17zuoye (aka Homework Together)

Beijing, China
Aug - Dec 2015