# Xingyu Wang

Contact 2145 Sheridan Road (224) 307-0602 Information

Evanston, IL 60208 xingyuwang2017@u.northwestern.edu

Webpage: https://joshwang0322.github.io

RESEARCH Interests

• Rare Event Analysis, Large Deviations and Metastability, Heavy Tails

• Machine Learning Theory

• Stochastic Simulation

**EDUCATION** 

#### Northwestern University, McCormick School of Engineering

Evanston, IL

• Ph.D. in Industrial Engineering and Management Sciences, GPA: 4.0/4.0 2018 - Present Advisor: Chang-Han Rhee

• M.S. in Analytics, GPA: 3.98/4.00

2016 - 2017

#### Peking University

Beijing, China

• B.S. in Psychology (GPA: 3.8/4.0) and Applied Mathematics (GPA: 3.94/4.00) 2011 - 2016

## WORKING PAPERS Large Deviations and Metastability Analysis for Heavy-Tailed Dynamical Systems, [pdf]

Xingvu Wang, Chang-Han Rhee

To be submitted to Probability Theory and Related Fields, arXiv:2307.03479 Finalist for George Nicholson Student Paper Competition, 2023

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

Xingyu Wang, Chang-Han Rhee

To be submitted to Mathematics of Operation Research, arXiv:2309.13820

SELECTED **PUBLICATIONS** 

## Importance Sampling Strategy for Heavy-Tailed Systems with Catastrophe Principle pdf

Xingyu Wang, Chang-Han Rhee

Proceedings of Winter Simulation Conference (WSC), 2023

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

Xingyu Wang, Sewoong Oh, Chang-Han Rhee

Proceedings of International Conference on Learning Representations (ICLR), 2022

Nemhauser Prize for Best Student Paper, 2022

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

Xingyu Wang, Chang-Han Rhee

Proceedings of Winter Simulation Conference (WSC), 2020

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

Xingyu Wang, Diego Klabjan

Proceedings of International Conference on Machine Learning (ICML), 2018

## OF Finalist for George Nicholson Student Paper Competition, INFORMS  **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 2013  **Invited**  **PRESENTATIONS**  **Large Deviation and Metastability Analysis for Heavy-Tailed Dynamical Systems**  **InFORMS Annual Meeting, Phoenix, AZ**  **Cornell ORIE Young Researchers Workshop, Ithaca, NY**  **Scheduled for Oct, 2023**  **Importance Sampling Strategy for Heavy-Tailed Systems with Catastrophe Principle**  **Winter Simulation Conference (Advanced Tutorial), San Antonio, TX**  **Scheduled for Oct, 2023**  **InFORMS Annual Meeting, Phoenix, AZ**  **Applied Probability Society 2023 Conference, Nancy, France**  **INFORMS Annual Meeting, Phoenix, AZ**  **Applied Probability Society 2023 Conference, Nancy, France**  **INFORMS Annual Meeting, Indianapolis, IN**  **Oct, 2022**  **International Conference on Learning Representations (2022), Virtual**  **DeepMath (2021), Virtual**  **DeepMath (2021), Virtual**  **DeepMath (2021), Virtual**  **Teaching Assistant**  **Efficient Rare-Event Simulation for Multiple Jump Events in Regularly Varying Lévy Processes with Infinite Activities [slides]*  **Winter Simulation Conference, Virtual**  **EMS 317 Discrete Event Systems Simulation**  **EMS 315 Stochastic Models**  **Course Grader**  **OPNS 450 Decision models & Prescriptive Analytics**  **EMS 315 Stochastic Simulation**  **EMS 315 Stochastic Simulation**  **EMS 315 Stochastic Simulation**  **Decaption**  **Decaption**  **Decaption**  **Decaption**  **Decaption**  **Decaption**  **Decaption**  **Decaption**  **Decaption**				
Nemhauser Prize for Best Student Paper, Department of Industrial Engineering and Management Sciences, Northwestern University 2022  Benjamin A. Sachs Graduate Fellowship, 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 2013  INVITED  PRESENTATIONS  Large Deviation and Metastability Analysis for Heavy-Tailed Dynamical Systems  NIFORMS Annual Meeting, Phoenix, AZ Scheduled for Oct, 2023  Cornell ORIE Young Researchers Workshop, Ithaca, NY Scheduled for Oct, 2023  Importance Sampling Strategy for Heavy-Tailed Systems with Catastrophe Principle  Winter Simulation Conference (Advanced Tutorial), San Antonio, TX Scheduled for Oct, 2023  Eliminating Sharp Minima from SGD with Truncated Heavy-Tailed Noises [slides]  INFORMS Annual Meeting, Phoenix, AZ Scheduled for Oct, 2023  Applied Probability Society 2023 Conference, Nancy, France Jun, 2023  InFORMS Annual Meeting, Indianapolis, IN Oct, 2022  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 [slides]  Winter Simulation Conference, Virtual Dec, 2020  Instructor  EXPERIENCE  Instructor  EXPERIENCE  Instructor  EXPERIENCE  LEMS 317 Discrete Event Systems Simulation 2022 Winter; 2021 Winter; 2021 Winter; 2021 Winter; 2021 Winter; 2021 Winter; 2021 Spring, Fall; 2020 Spring, Fall Course Grader  OPNS 450 Decision models & Prescriptive Analytics 2022 Winter; 2	Honors and	• Finalist for George Nicholson Student Paper Compe	etition, INFORMS 2023	
Benjamin A. Sachs Graduate Fellowship, Northwestern University 2022  **Benjamin A. Sachs Graduate Fellowship, Northwestern University 2019  **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 2013  INVITED PRESENTATIONS  **Large Deviation and Metastability Analysis for Heavy-Tailed Dynamical Systems    **INFORMS Annual Meeting, Phoenix, AZ	Awards	• Terminal Year Fellowship, Northwestern University	2023	
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## Professional Services

- Reviewer, INFORMS Journal on Computing, Winter Simulation Conference (WSC)
- $\bullet$  Webmaster, Stochastic Networks, Applied Probability, and Performance (SNAPP) seminar (2023)
- Mentor, 1st-year mentorship program (2020,2021), NU INFORMS Student Chapter

Industrial	Graduate Student Analytics Consultant, Chicago Park District	Chicago, IL
Experience		Oct 2016 - May 2017

**Data Analyst Intern**, 17zuoye (aka Homework Together, K12 education platform)Beijing, China Aug - Dec 2015

## REFERENCES Anton Braverman, Assistant Professor of Operations, Kellogg School of Management, Northwestern University, anton.braverman@kellogg.northwestern.edu

**Barry Nelson**, Walter P. Murphy Professor Emeritus of Industrial Engineering and Management Sciences, Northwestern University, nelsonb@northwestern.edu

**Sewoong Oh**, Professor, Allen School of Computer Science & Engineering, University of Washington, sewoong@cs.washington.edu

Chang-Han Rhee, Assistant Professor, Industrial Engineering and Management Sciences, Northwestern University, chang-han.rhee@northwestern.edu