

# Xingyu Wang

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CONTACT INFORMATION	2145 Sheridan Road Evanston, IL 60208 Webpage: <a href="https://joshwang0322.github.io">https://joshwang0322.github.io</a>	(224) 307-0602 <a href="mailto:xingyuwang2017@u.northwestern.edu">xingyuwang2017@u.northwestern.edu</a>
RESEARCH INTERESTS	<ul style="list-style-type: none"><li>• Rare Event Analysis, Large Deviations and Metastability, Heavy Tails</li><li>• Machine Learning Theory</li><li>• Stochastic Simulation</li></ul>	
EDUCATION	<b>Northwestern University, McCormick School of Engineering</b> <ul style="list-style-type: none"><li>• Ph.D. in <a href="#">Industrial Engineering and Management Sciences</a>, <i>GPA: 4.0/4.0</i> <i>Advisor: Chang-Han Rhee</i></li><li>• M.S. in <a href="#">Analytics</a>, <i>GPA: 3.98/4.00</i></li></ul> <b>Peking University</b> <ul style="list-style-type: none"><li>• B.S. in Psychology (<i>GPA: 3.8/4.0</i>) and Applied Mathematics (<i>GPA: 3.94/4.00</i>)</li></ul>	Evanston, IL 2018 - Present 2016 - 2017 Beijing, China 2011 - 2016
WORKING PAPERS	<b>Large Deviations and Metastability Analysis for Heavy-Tailed Dynamical Systems</b> <a href="#">[pdf]</a> Xingyu Wang, Chang-Han Rhee To be submitted to <i>Probability Theory and Related Fields</i> , <a href="#">arXiv:2307.03479</a> <i>Second Place, George Nicholson Student Paper Competition</i> , 2023  <b>Strongly Efficient Rare-Event Simulation for Multiple Jump Events in Regularly Varying Lévy Processes with Infinite Activities</b> <a href="#">[pdf]</a> Xingyu Wang, Chang-Han Rhee To be submitted to <i>Mathematics of Operations Research</i> , <a href="#">arXiv:2309.13820</a>	
SELECTED PUBLICATIONS	<b>Importance Sampling Strategy for Heavy-Tailed Systems with Catastrophe Principle</b> <a href="#">[pdf]</a> Xingyu Wang, Chang-Han Rhee Proceedings of Winter Simulation Conference (WSC), 2023  <b>Eliminating Sharp Minima from SGD with Truncated Heavy-Tailed Noises</b> <a href="#">[pdf]</a> Xingyu Wang, Sewoong Oh, Chang-Han Rhee Proceedings of International Conference on Learning Representations (ICLR), 2022 <i>Nemhauser Prize for Best Student Paper</i> , 2022  <b>Efficient Rare-Event Simulation for Multiple Jump Events in Regularly Varying Lévy Processes with Infinite Activities</b> <a href="#">[pdf]</a> Xingyu Wang, Chang-Han Rhee Proceedings of Winter Simulation Conference (WSC), 2020  <b>Competitive Multi-Agent Inverse Reinforcement Learning with Sub-Optimal Demonstrations</b> <a href="#">[pdf]</a> Xingyu Wang, Diego Klabjan Proceedings of International Conference on Machine Learning (ICML), 2018	

## HONORS AND AWARDS

- **Second Place, George Nicholson Student Paper Competition**, 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 of Undergraduates**, Department of Psychology, Peking University 2013

## INVITED PRESENTATIONS

### **How to Characterize Global Dynamics with Rare-Event Analysis: A Heavy-Tail Framework in Deep Learning**

- SNAPP Seminar, Lightning Talk Session, Virtual Scheduled for Dec, 2023

### **Large Deviation and Metastability Analysis for Heavy-Tailed Dynamical Systems**

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

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

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

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

- INFORMS Annual Meeting, Phoenix, AZ Oct, 2023
- Applied Probability Society 2023 Conference, 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** [\[slides\]](#)

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

## TEACHING EXPERIENCE

### **Instructor**

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

### **Teaching Assistant**

- IEMS 317 Discrete Event Systems Simulation 2022 Winter; 2021 Winter
- IEMS 315 Stochastic Models 2021 Spring, Fall; 2020 Spring, Fall

### **Course Grader**

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

PROFESSIONAL  
SERVICES

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

INDUSTRIAL  
EXPERIENCE

**Graduate Student Analytics Consultant**, Chicago Park District Chicago, IL  
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  
Industrial Engineering and Management Sciences  
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**Sewoong Oh**

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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  
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