

NINGJI WEI

ningji.wei@ttu.edu

RESEARCH INTERESTS

- Optimization under uncertainty, network optimization, graph interdiction, integer programming, stochastic processes on graph, machine learning methods, and their applications in process engineering, vehicle routing, supply chain design, and inventory policies.

RESEARCH EXPERIENCE

Texas Tech University

July 2022 - Now

- Assistant Professor in the Department of Industrial, Manufacturing & Systems Engineering

Carnegie Mellon University's Heinz College

July 2020 - June 2022

- Postdoctoral Researcher

EDUCATION

University at Buffalo, The State University of New York

Aug 2016 - June 2020

- Ph.D., Industrial and Systems Engineering
Advisor: Dr. Jose L. Walteros
Dissertation: Integer Programming Methods for Binary Interdiction Games
Committee: Dr. Mark H. Karwan, Dr. Shi Li, Dr. Jose L. Walteros

University at Buffalo, The State University of New York

Aug 2014 - June 2016

- M.Sc., Industrial and Systems Engineering
Advisor: Dr. Jose L. Walteros

Southeast University, Nanjing, China

Aug 2004 - June 2008

- B.S., Logistics Management

AWARDS AND HONORS

- 2022 INFORMS Junior Faculty (JFIG) Paper Competition First Place.
- Teaching Assistant of the Year, Department of ISE, University at Buffalo, SUNY, 2019.
- Employee of The Year, Ping An Insurance (Group) Company of China, LTD, 2009.

PUBLICATIONS

Ningji Wei, Hur-E-Jannat Moni, Qiang Jiang, Yanliang Zhang, Minxiang Zeng, "Drying-Oriented Resolution Optimization for Multi-Material Additive Manufacturing: A Case Study on Coffee-Ring Effect." **Additive Manufacturing** (2024). [link]

Ningji Wei, Jose L. Walteros, "On Supervalid Inequalities for Binary Interdiction Games." **Mathematical Programming** (2024). [link]

Ningji Wei, Peter Y. Zhang, "Adjustability in Robust Linear Optimization." **Mathematical Programming** (2024). [link]

Cai Gao, **Ningji Wei**, Jose L. Walteros, “An Exact Approach for Solving Pickup-and-Delivery Traveling Salesman Problems with Neighborhoods.” **Transportation Science** (2023). [link]

Ningji Wei, Jose L. Walteros, “Integer Programming Methods for Binary Interdiction Games.” **European Journal of Operational Research** (2022). [link]

Ningji Wei, Jose L. Walteros, Foad Mahdavi Pajouh, “Integer Programming Formulations for Minimum Spanning Tree Interdiction.” **INFORMS Journal on Computing** (2021). [link]

Ningji Wei, Jose L. Walteros, McKenzie R Worden, Héctor J Ortiz-Peña “A Resiliency Analysis of Information Distribution Policies over Mobile Ad Hoc Networks.” **Optimization Letters** (2021). [link]

Ningji Wei, Jose L. Walteros, Rajan Batta, “On the Distance Between Random Events on a Network.” Published in **Networks** (2020). [link]

PAPERS UNDER REVIEW

Ningji Wei, Xian Yu, Peter Y. Zhang, “Redefining Coherent Risk Measures: From Gauge Optimization to Regularization.” Under review in **Operations Research**.

Ningji Wei, Peter Y. Zhang, “Information Basis in Dynamic Robust Optimization.” Under review in **INFORMS Journal on Computing**. [link]

Ningji Wei, “Binary Integer Program Reformulation: A Set System Approximation Approach.” Under review in **European Journal of Operational Research**. [link]

Ningji Wei, “Convexoid: A Minimal Theory of Conjugate Convexity.” Under review in **Mathematics of Operations Research**. [link]

PAPERS IN PREPARATION

Hao Hao, Peter Y. Zhang, **Ningji Wei**, “Robust Designs of Critical Supply Chains.”

Thanakrit Piyachayawat, **Ningji Wei**, “Robust Network Enhancement.”

Zolykha Rezaei, **Ningji Wei**, Eojin Han, “ k -Adaptability via Orthogonal Partition and Lifting.”

Zolykha Rezaei, **Ningji Wei**, Peter Y. Zhang, “Optimality of Affine Policies in Dynamic Robust Linear Optimization.”

CONFERENCE PROCEEDINGS AND PRESENTATIONS

Thanakrit Piyachayawat, **Ningji Wei**, “Robust Network Enhancement.” 2024 INFORMS annual meeting.

Zolykha Rezaei, **Ningji Wei**, Eojin Han, “Finite-Adaptability via Orthogonal Partition and Lifting.” 2024 INFORMS annual meeting.

Ningji Wei, “Binary Integer Program Reformulation: A Set System Approximation Approach.” 2024 INFORMS annual meeting.

Ningji Wei, Peter Y. Zhang, “Information Basis in Dynamic Robust Optimization.” INFORMS Optimization Society Conference 2024.

Ningji Wei, “General 0-1 Integer Programs Reformulation: A Set System Approximation Approach.” INFORMS Optimization Society Conference 2024.

Ningji Wei, Peter Y. Zhang, “Sparsity in Dynamic Robust Optimization.” 2023 INFORMS annual meeting.

Ningji Wei, Peter Y. Zhang, “Adjustability in Robust Linear Optimization.” SIAM Conference on Optimization 2023.

Ningji Wei, Peter Y. Zhang, “Adjustability in Robust Linear Optimization.” 2023 XVI International Conference Stochastic Programming.

Ningji Wei, Jose L. Walteros, “Supervalid Inequalities in Binary Interdiction Games.” 2022 INFORMS annual meeting.

Ningji Wei, Peter Y. Zhang, “Adjustability in Robust Linear Optimization.” International Conference on Continuous Optimization 2022.

Ningji Wei, Peter Y. Zhang, “Adjustability in Robust Linear Optimization.” INFORMS Optimization Society Conference 2022.

Ningji Wei, Peter Y. Zhang, “Optimality Criteria of Constant and Affine Policies in Adjustable Robust Optimization.” 2021 INFORMS annual meeting.

Ningji Wei, Jose L. Walteros, “Integer Programming Methods for Solving Binary Interdiction Games.” 2021 INFORMS annual meeting.

Ningji Wei, Peter Y. Zhang, “Affine and Constant Policies in Adjustable Linear Robust Optimization: A New Perspective.” 2021 MOPTA.

Ningji Wei, Peter Y. Zhang, “Affine and Constant Policies in Adjustable Linear Robust Optimization: A New Perspective.” 2021 CORS Annual Conference.

Ningji Wei, Peter Y. Zhang, “On the Optimality of Parameterized Policies in Adjustable Robust Optimization.” 2020 INFORMS annual meeting.

Ningji Wei, Cai Gao, Jose L. Walteros, “Optimality Criteria for the Closed-Enough Travelling Salesman Problem with General-Shaped Regions.” 2020 INFORMS annual meeting.

Ningji Wei, Peter Y. Zhang, “On the Optimality of Parameterized Policies in Adjustable Robust Optimization.” 2020 INFORMS annual meeting.

Ningji Wei, Jose L. Walteros, “A Resiliency Analysis of Information Distribution Policies over Mobile Ad Hoc Networks.” 2019 INFORMS annual meeting.

Ningji Wei, Jose L. Walteros, “Conditional Supervalid Inequalities on Graph Interdiction Problems.” 2019 IISE annual meeting, Doctoral Curriculum Invited Poster Competition.

Ningji Wei, Jose L. Walteros, “Supervalid Inequalities for Network Interdiction Problems.” 2018 INFORMS annual meeting.

Ningji Wei, Rajan Batta, Jose L. Walteros, “Statistics of Distance Between two Random Events in a Network.” 2018 INFORMS annual meeting.

Ningji Wei, Jose L. Walteros, “Conditional Supervalid Inequalities on General Graph Interdiction Problems.” 2018 INFORMS Optimization Society Conference.

Ningji Wei, Jose L. Walteros, “Supervalid Inequalities for Network Interdiction Problems.” 2017 INFORMS annual meeting.

Ningji Wei, Jose L. Walteros, F. Mahdavi Pajouh, “Integer Programming Formulations for Minimum Spanning Tree Interdiction.” 2017 INFORMS annual meeting.

Jose L. Walteros, **Ningji Wei**, F. Mahdavi Pajouh, “Integer Programming Formulations for Minimum Spanning Tree Interdiction.” 2016 INFORMS Optimization Society Conference.

PROFESSIONAL DEVELOPMENT ACTIVITIES

Chaired “Advances of Reformulation Methods in General Integer Programming” Session at INFORMS 2024 Annual Meeting.

Chaired “Recent Advances in Network Optimization and Their Applications” Session at INFORMS 2023 Annual Meeting.

Co-chaired “Recent Advances in Affine/Linear Decision Rules: Theory and Applications” Mini-symposium at SIAM Conference on Optimization 2023.

Chaired “Recent Advances in Multi-level Network Optimization and Their Applications” Session at INFORMS 2022 Annual Meeting.

Chaired “Recent Advances in Multi-level Network Optimization and Their Applications” Session at CORS/INFORMS International Conference 2022.

TEACHING EXPERIENCE

Texas Tech University

- IE5331-003 Operations Research in Action: Optimizing Airline Logistics Spring 2025
- IE5331-016 Mathematical Foundations of Operations Research Fall 2024
- IE3312 Probabilistic Operations Research Spring 2024
- IE5331-004 Convex Analysis and General Duality Spring 2024
- IE3312 Probabilistic Operations Research Spring 2023
- IE5331-016 Mathematical Foundations of Operations Research Fall 2022

University at Buffalo, SUNY

- Stochastic Methods Fall 2019
- Systems Modeling and Operations Research 2 Spring 2019
- Introduction to Linux Server & CCR Fall 2018

PEER REVIEW ACTIVITIES

- Reviewer for Operations Research, Mathematical Programming, INFORMS Journal on Computing, Discrete Optimization, European Journal on Operational Research, Networks, Journal of Global Optimization, Annals of Operations Research, Optimization Letters, Naval Research Logistics, Computers and Operations Research, Production and Operations Management, Manufacturing & Service Operations Management, Theoretical Computer Science.

PROFESSIONAL EXPERIENCE

Ping An Insurance (Group) Company of China, LTD 2012 - 2014
Leader of Systems Management Team, Operation Management Center

- Analyzed operations in department, designed and implemented systematic solutions.
- Created Data Transformation & Presentation Tool.

Ping An Insurance (Group) Company of China, LTD 2008 - 2012
System Engineer, Business Analyst

- Designed HR Service System.

- Designed Employee Service System.
- Project manager for RFID archives management system.

PROFESSIONAL MEMBERSHIP

INFORMS: The Institute for Operations Research and the Management Sciences.