Ryan Feng Lin

Department of Industrial & Systems Engineering
University of Washington
Box 352650, Seattle, WA 98195-2650

Phone: (206) 321-8275
Email: ryanflin@uw.edu
Homepage: ryanflin.com

Education

University of Washington, Seattle, WA — Expected 06/2026
Ph.D., Industrial and Systems Engineering
Ph.D. advisor: Shuai Huang
Dissertation: Trustworthy Personalized Machine Learning Systems under User–System Interactions

University of Science and Technology of China, Hefei, China — 06/2020
M.S., Computer Science
Thesis: Learning with Collaborative Local Disturbance for 3D Skeleton-based Human Action Recognition

University of Science and Technology of China, Hefei, China — 06/2017
B.S., Statistics
B.S., Computer Science (Double degree)

Honors, Awards & Fellowship

Honorable Mention (Runner-up) in INFORMS QSR Best Paper Competition, for the paper "CrowdLLM: A Synthetic Crowd of LLM-based Decision-Makers Augmented with Generative Models" 09/2025

Meta AI Mentorship Fellowship 09/2024 – 09/2025

Finalist in INFORMS QSR Best Paper Competition, for the paper "Fair Collaborative Learning (FairCL): A Method to Improve Fairness amid Personalization" 10/2023

Research Interests

Methodology: machine learning and AI (LLM, generative models, etc.), uncertainty quantification, experimental design/active learning, data-driven optimization

Applications: healthcare and medicine, transportation, and marketing

Teaching Interests

AI and machine learning: machine learning foundations, deep learning (theory and algorithms), reinforcement learning; **Statistics-related courses:** design of experiments, statistical quality control, data analysis; **Optimization-related courses:** integer programming, dynamic programming, convex optimization

Publications

In this list below, I indicate with:
† co-first author
(⋆) graduate students I mentor as co-authors
For peer-reviewed conferences, acceptance rates are shown whenever available.

Refereed Journal Papers

[1] Congjing Zhang†(⋆), **Ryan F. Lin**†, Xinyi Zhao, Pei Guo, Wei Li, Lin Chen, Chaoyue Zhao, and Shuai Huang. "ALARM: Automated LLM-Based Anomaly Detection in SmaRt-Home Monitoring with Uncertainty Quantification." In major revision at *INFORMS Journal on Data Science*.

[2] **Ryan F. Lin**†, Keyu Tian†, Congjing Zhang(⋆), Hanming Zheng, Li Zeng, and Shuai Huang. "CrowdLLM: A Synthetic Crowd of LLM-based Decision-Makers Augmented with Generative Models." Under review at *INFORMS Journal on Data Science*. (Honorable Mention of INFORMS QSR Best Paper Competition, 2025)

[3] **Ryan F. Lin**, Chaoyue Zhao, Xiaoning Qian, Kendra Vehik, and Shuai Huang. "Fair Collaborative Learning (FairCL): A Method to Improve Fairness amid Personalization." *INFORMS Journal on Data Science*, 4(1), pp.67-84, 2025. (Finalist of INFORMS QSR Best Paper Competition, 2023)

[4] **Ryan F. Lin**, Xiaoning Qian, Bobak Mortazavi, Zhangyang Wang, Shuai Huang, and Cynthia Chen. "Modeling User Choice Behavior under Data Corruption: Robust

Learning of the Latent Decision Threshold Model." *IISE Transactions*, 56(12), pp. 1307-1320, 2024.

Peer-Reviewed Conference Papers

[5] Congjing Zhang[†](⋆), **Ryan F. Lin**[†], and Shuai Huang. "Team, then Trim: An Assembly-Line LLM Framework for High-Quality Tabular Data Generation." Under review at *the 14th International Conference on Representation Learning (ICLR)*.

– Average acceptance rate around 31% in the past years.

[6] Yunkai Zhang, Qiang Zhang, Diji Yang, **Ryan F. Lin**, Ruizhong Qiu, Benyu Zhang, Hanchao Yu, Jason Liu, Yinglong Xia, Zhuokai Zhao, Lizhu Zhang, Xiangjun Fan, Zhuoran Yu, Abhishek Kumar, and Zeyu Zheng. "Enhancing Generative Recommender Systems via Structured Human Priors with Multi-head Decoding." Under review at *the 2026 ACM Web Conference (WWW)*.

– Average acceptance rate around 20% in the past years.

[7] Junyuan Hong, Huanhuan Chen, and **Ryan F. Lin**. "Disturbance Grassmann Kernels for Subspace-Based Learning." *Proceedings of the 24th ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD)*, pp. 1521-1530, 2018.

– Acceptance rate 18.4% in year of submission.

Papers in Submission (full preprints expected shortly)

[8] **Ryan F. Lin**, Ji Liu, and Shuai Huang. "Learning to Collect: A Two-Stage Data Collection Framework for Data-Efficient Personalization." To be submitted to *INFORMS Journal on Data Science*.

[9] **Ryan F. Lin**[†], Congjing Zhang[†](⋆), Kendra Vehik, Hemang Parikh, Mingqian Li, Richard Oram, Xiaoning Qian, and Shuai Huang. "Benchmarking Fairness of Genetic Risk Score Models for Early-stage Prediction of Type 1 Diabetes from the TEDDY Study." To be submitted to *JAMA Network Open.*

[10] **Ryan F. Lin**, Xufeng Cai, Lei Yuan, Boying Liu, Ali Selman Aydin, Ziwei Guan, Wenbo Ren, Yuting Zhang, Qunshu Zhang, Shuai Huang, Yinglong Xia, and Ji Liu. "Robust Contextual Optimization for Personalization." To be submitted to *KDD 2026.*

[11] **Ryan F. Lin**, Xiaoning Qian, and Shuai Huang. "Relieving the Myopia: Bayesian Active Learning by Mean Objective Cost of Uncertainty with Confidence Ascending." To be submitted to *ICML 2026.*

[12] Yuantao Wei[†](⋆), **Ryan F. Lin**[†], and Shuai Huang. "Learning Causal Graphs from Human Knowledge: A Mixture-of-Chains Framework." To be submitted to *Journal of Machine Learning Research.*

Teaching Experience

Instructor, IND E 412 Integer & Dynamic Programming 03/2024 – 06/2024

Teaching Assistant

IND E 427&527 Data Analytics for Systems Engineering 09/2025 – Present

IND E 310 Linear & Network Programming 09/2023 – 12/2023

Mentoring Experience

Yuantao Wei, *Master's student in ISE* 05/2025 – Present

Topic: Causal inference, Online learning

– Co-supervise master's thesis

Congjing Zhang, *PhD student in ISE* 08/2023 – Present

Topic: Large Language Models for Decision-making

– Formulation of research projects; Cultivation of analytical skills (e.g., matrix factorization for uncertainty quantification); Manuscript writing

Grant Writing Participation

National Science Foundation (NSF)

[1] Collaborative Research: SCH: VR-Assisted Digital Twin of Nurse Fatigue
(PI: Dr. Shuai Huang; pending)
Contribution: Help define the overall scope and write the complete Task 2 (Hierarchical Collaborative Learning) & Task 4 (M-Optimal Bandit).

[2] Collaborative Research: III: AI-assisted Knowledge Discovery of Complex Disease
(PI: Dr. Shuai Huang; pending)
Contribution: Help define the overall scope and write the complete Task 2 (Uncertainty Quantification).

Intelligence Advanced Research Projects Activity (IARPA)

[3] Translating Fine-grained Human Trajectories into Intelligence by Meaning-making and Reference Matching (PI: Dr. Shuai Huang; unfunded)
Contribution: Help formulate Thrust 5 (GAN-based Anomaly Detection).

Meta Platforms Inc.

[4] Optimal Decision in Recommendation (PI: Dr. Shuai Huang; funded)
Contribution: Lead the proposal writing.

Amazon.com Inc.

[5] A Digital Twin Framework for Smart Pricing (PI: Dr. Shuai Huang; funded)
Contribution: Help formulate Task 1 (Personalized User Choice Behavior Modeling).

Talks & Presentations

[1] "CrowdLLM: A Synthetic Crowd of LLM-based Decision-Makers Augmented with Generative Models," *INFORMS Annual Meeting*, 2025, Atlanta, GA.

[2] "Learning to Collect: A Two-Stage Data Collection Framework for Data-Efficient Personalization," *INFORMS Annual Meeting*, 2025, Atlanta, GA.

[3] "Bayesian Active Learning by Confidence Gradient-based Mean Objective Cost of Uncertainty," *INFORMS Annual Meeting*, 2025, Atlanta, GA.

[4] "Create a Digital Population at Scale with Large Language Models (LLMs) and Generative AI through the CrowdLLM Framework," *Graduate Seminar, Department of Industrial and Systems Engineering, University of Washington*, 2025, Seattle, WA.

[5] "Relieving the Myopia: Bayesian Active Learning by Confidence Gradient Mean Objective Cost of Uncertainty," *Quality and Productivity Research Conference (QPRC)*, 2025, Seattle, WA.

[6] "Benchmarking Fairness of Genetic Risk Score Models for Early-stage Prediction of Type 1 Diabetes from the TEDDY study," *INFORMS Annual Meeting*, 2024, Seattle, WA.

[7] "Fairness Amid Personalization: Battling Disparity through Fair Collaborative Learning (FairCL)," *Graduate Seminar of Department of Industrial and Systems Engineering, University of Washington*, 2024, Seattle, WA.

[8] (poster) "Genetic Risk Score for Type 1 Diabetes across Ethnic Populations via Multitask Learning," *American Diabetes Association (ADA) Scientific Sessions*, 2024, Orlando, FL.

[9] "Fair Collaborative Learning (FairCL): A Method to Improve Fairness amid Personalization," *INFORMS Annual Meeting*, 2023, Phoenix, AZ.

Working Experience

Visiting Researcher	Meta Platforms Inc.	09/2024 – 09/2025
Biostatistician (Internship)	Mayo Clinic	06/2022 – 09/2022
Research Assistant	University of Washington	01/2021 – Present

Conference Organization

[1] *Session Chair*, "Integration of Human, Knowledge and Systems for Quality and Personalized Decision-making," INFORMS Annual Meeting, 2025.

[2] *Session Co-Chair*, "Data-Driven vs. Rule-Based: Bridging the Gap for Real-World Applications," INFORMS Annual Meeting, 2025.

[3] *Session Chair*, "Integration of Human, Knowledge and Systems for Quality," INFORMS Annual Meeting, 2024.

[4] *General Chair*, China R Conference (Hefei), 2017.

[5] *Program Committee Member*, International Workshop on Nature Inspired Computation and Applications, Hefei, 2017.

Reviewer

Journal

IEEE Transactions on Automation Science and Engineering

INFORMS Journal on Data Science

IISE Transactions on Healthcare Systems Engineering

IEEE Transactions on Artificial Intelligence

IEEE Transactions on Neural Networks and Learning Systems

IEEE Transactions on Emerging Topics in Computing

Computers & Industrial Engineering

Conference

ISMB/ECCB 2021

IEEE Intelligent Vehicles Symposium 2026

Membership

Institute for Operations Research and the Management Sciences (INFORMS)

Quality, Statistics, and Reliability (QSR) at INFORMS

Data Mining (DM) at INFORMS

Institute of Industrial and Systems Engineers (IISE)

American Statistical Association (ASA)

Institute of Electrical and Electronics Engineers (IEEE)