Kyra (Jingyi) Gan **Last update: June, 2025**

CONTACT

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EMPLOYMENT

Assistant Professor, **Cornell Tech**, ORIE, NYC, NY 2023-

Postdoctoral Fellow, **Harvard University**, Statistics, Cambridge, MA 2022-2023

- Under the supervision of Susan A. Murphy

EDUCATION

Carnegie Mellon University, Tepper School of Business, Pittsburgh, PA 2017–2022

- Ph.D. in Operations Research (Minor in Machine Learning)
- Thesis: *Modern Methods in Precision Medicine*
- Committee: Sridhar Tayur (Co-chair), Andrew A. Li (Co-chair), Zachary Lipton, Alan Scheller-Wolf, Tinglong Dai

Smith College, Northampton, MA. 2014–2017

- B.A.s, Mathematics, Economics
- Honors: Dean's List 2014 – 2017, Elected Sigma Xi 2017, Ann Kirsten Pokora Prize (excellence in mathematics)

University of California, San Diego, La Jolla, CA. 2013–2014

- Honors: Provost Honors 2013—2014

AWARDS

- Finalist, 2023 INFORMS DMDA Workshop Best Paper Competition – Theoretical Track
- Winner, 2021 INFORMS Pierskalla Best Paper Award
- Winner, 2021 CHOW Best Student Paper in the Category of Operations Research and Management Science
- Finalist, 2019 INFORMS IBM Service Science Best Student Paper Award
- Tata Consultancy Services Fellowship, 2020
- William Larimer Mellon PhD Fellowship, 2017-2019, 2021, 2022

GRANTS

- AWS Credit Grants – Cornell's Center for Data Science for Enterprise and Society, 2024-2025

PREPRINTS

Unless otherwise mentioned, authors are listed following standard **computer science** practice.
Author contribution markers:
♣: Lead junior author (among junior faculty authors); ♦: Authors ordered by contributions;
__: Student and postdoc authors at the time of completion; *: Equal contributions.

- **When Additive Noise Meets Unobserved Mediators: Bivariate Denoising Diffusion for Causal Discovery** Dominik Meier*, Sujai Hiremath*, Promit Ghosal, and **Kyra Gan**
- **Optimal Adjustment Sets for Nonparametric Estimation of Weighted Controlled Direct Effect** Ruiyang Lin, Yongyi Guo, and **Kyra Gan**
- **MOSIC: Model-Agnostic Optimal Subgroup Identification with Multi-Constraint for Improved Reliability** Wenxin Chen, Weishen Pan, **Kyra Gan**♣, and Fei Wang
- **From Restless to Contextual: A Thresholding Bandit Approach to Improve Finite-horizon Performance** Jiamin Xu, Ivan Nazarov, Aditya Rastogi, Africa Parianez, and **Kyra Gan**
- **Online Uniform Sampling: Randomized Learning-Augmented Approximation Algorithms with Application to Digital Health** Xueqing Liu, **Kyra Gan**♣, Esmaeil Keyvanshokooh, and Susan A. Murphy

Refereed Conference Proceedings

- **LoSAM: Local Search in Additive Noise Models with Mixed Mechanisms and General Noise for Global Causal Discovery**
  Uncertainty in Artificial Intelligence (UAI) 2025
  Sujai Hiremath, Promit Ghosal, and **Kyra Gan**

- **Reward Maximization for Pure Exploration: Minimax Optimal Good Arm Identification for Nonparametric Multi-Armed Bandits**
  Artificial Intelligence and Statistics Conference (AISTATS) 2025
  Brian Cho, Dominik Meier, **Kyra Gan**♣, and Nathan Kallus

- **CSPI-MT: Calibrated Safe Policy Improvement with Multiple Testing for Threshold Policies**
  ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD) 2025
  Brian Cho, Ana-Roxana Pop, **Kyra Gan**♣, Sam Corbett-Davies, Israel Nir, Ariel Evnine, and Nathan Kallus

- **Local Causal Discovery for Structural Evidence of Direct Discrimination**
  The AAAI Conference on Artificial Intelligence 2025
  Jacqueline Maasch, **Kyra Gan**♣, Violet Chen, Agni Orfanoudaki, Nil-Jana Akpinar, and Fei Wang

- **Hybrid Top-Down Global Causal Discovery with Local Search for Linear and Nonlinear Additive Noise Models**
  Conference on Neural Information Processing Systems (NeurIPS) 2024
  Sujai Hiremath, Jaqueline Maasch, Mengxiao Gao, Promit Ghosal, and **Kyra Gan**

- **Peeking with PEAK: Sequential, Nonparametric Composite Hypothesis Tests for Means of Multiple Data Streams**
  International Conference on Machine Learning (ICML) 2024
  Brian Cho, **Kyra Gan**♦, and Nathan Kallus

- **Local Causal Discovery by Partitioning: Polynomial-Time Causal Discovery around Exposure-Outcome Pairs**
  Uncertainty in Artificial Intelligence (UAI) 2024
  Jacqueline Maasch, Weishen Pan, Shantanu Gupta, Volodymyr Kuleshov, **Kyra Gan**♣, and Fei Wang
  A preliminary version appeared in the Causal Representation Learning Workshop (Neurips 2023)

- **Kernel Debiased Plug-in Estimation: Simultaneous, Automated Debiasing without Influence Functions for Many Target Parameters**
  International Conference on Machine Learning (ICML) 2024
  Finalist, 2023 INFORMS DMDA Workshop Best Paper Competition – Theoretical Track
  Brian Cho, Yaroslav Mukhin, **Kyra Gan**♦, and Ivana Malenica

- **Anytime-Valid Inference in N-of-1 Trials**
  Machine Learning for Health (ML4H) symposium 2023
  Ivana Malenica, Yongyi Guo, **Kyra Gan**, and Stefan Konigorski

- **Contextual Bandits with Budgeted Information Reveal.**
  Artificial Intelligence and Statistics Conference (AISTATS) 2024
  Kyra Gan, Esmaeil Keyvanshokooh, Xueqing Liu, and Susan A. Murphy

- **Greedy Approximation Algorithms for Active Sequential Hypothesis Testing.**
  Conference on Neural Information Processing Systems (NeurIPS) 2021
  Kyra Gan*, Su Jia*, and Andrew Li

- **Causal Inference with Selectively Deconfounded Data.**
  Artificial Intelligence and Statistics Conference (AISTATS) 2021
  Kyra Gan♦, Andrew Li, Zachary Lipton, and Sridhar Tayur

- **Data Visualization of Agent-Based Modeling of Virus Spread.**
  International Conference on Advanced Communications and Computation (INFOCOMP) 2017
  Jingyi Gan and Dominique Thiébaut.

Journal Publications

- **Improving Treatment Responses through Limited Nudges: A Data-Driven Learning and Optimization Approach.**
  Esmaeil Keyvanshokooh, **Kyra Gan**, Yongyi Guo, Xueqing Liu, Anna L. Trella, and Susan A. Murphy

- **Toward a Liquid Biopsy: Greedy Approximation Algorithms for Active Sequential Hypothesis Testing.**
  2024. Forthcoming *Management Science*
  Winner, 2021 INFORMS Pierskalla Best Paper Award
  Kyra Gan*♦, Su Jia*, Andrew Li, and Sridhar Tayur

- **Awarding Additional MELD Points to the Shortest Waitlist Candidates Improves Sex Disparity in Access to Liver Transplant in the United States.**
  American Journal of Transplant 2022
  Sarah Bernards, Eric Lee, Ngai Leung, Mustafa Akan, **Kyra Gan**, Huan Zhao, Monika Sarkar, Sridhar Tayur, Neil Mehta

- **Machine Learning Algorithms for Predicting Hospital Readmissions in Sickle Cell Disease.**
  British Journal of Haematology 2020
  Arisha Patel*, **Kyra Gan***, Andrew A. Li, Jeremy Weiss, Seyed Mehdi Nouraie, Sridhar Tayur, and Enrico M Novelli.
  Extended abstract appeared in ASH Annual Conference 2019.

- **Causal Inference with Selectively Deconfounded Data.**
  Management Science 2nd round: major revision
  Kyra Gan♦, Andrew Li, Zachary Lipton, and Sridhar Tayur.

- **Optimizing Wearable Devices in Personalized Opioid Use Disorder Treatments Under Budget Constraints.**
  2021 CHOW Best Paper in the Category of Operations Research and Management Science
  Finalist, 2019 IBM Service Science Best Student Paper Award
  Kyra Gan, Yanhan (Savannah) Tang, Alan Scheller-Wolf, and Sridhar Tayur.

Selected Talks

- 8th Rotman Annual Research Roundtable, *Local Causal Discovery for Structural Evidence of Direct Discrimination for Liver Transplant*, Toronto, May 23, 2025
- Cornell AI Seminar, *Efficient Local and Global Causal Discovery: Methods Leveraging Causal Substructures for Improved Finite Sample Performance*, Virtual, Feb 14, 2025
- Workshop on Individualized Decision Making, panelist on implementation challenges of individualized decisions, Berkeley, July 18-19, 2024
- Conference on Health, Inference, and Learning (CHIL), moderator, the panel on behavioral health and economics, New York, June 27-28, 2024
- Pre-Enar Workshop on Statistical Methods for Digital Health Technologies data, *Online Uniform Risk Times Sampling*, Baltimore, March 2024
- Learning on Graphs New York, *A Gentle Introduction to Causal Discovery and Local Discovery*, Jersey City, March 2024
- Information Theory and Applications Workshop, *Online Uniform Risk Times Sampling*, San Diego, Feb 2024
- Cornell Center for Applied Mathematics Colloquium, *Kernel Debiased Plug-in Estimation*, Ithaca, Feb 2024
- Workshop on Quantifying Uncertainty: Stochastic, Adversarial, and Beyond, Simons Institute for the Theory of Computing, *Greedy Approximation Algorithms for Active Sequential Hypothesis Testing*, September 2022
- Harvard Statistics Colloquium, *Greedy Approximation Algorithms for Active Sequential Hypothesis Testing*, October 2022
- IMSI workshop on Machine Learning and Artificial Intelligence for Personalized Medicine, *Contextual Bandits with Budgeted Information Reveal*, April 2023

Teaching at Cornell Tech

- **ORIE 5217: Digital N-of-1 Trials and Their Applications** Spring 2025
- **ORIE 7790: Selected topics in Applied Statistics – Statistical and Optimization Methods for Decision-Making in Healthcare** Spring 2024
- **CS 5785/ORIE 5750/ECE 5414, Applied Machine Learning** Fall 2023, 2024

Teaching At CMU

- **Mathematical Modeling for Consulting, Instructor** Jan - May 2021

Community Service

- Co-chairing 2022 INFORMS Pierskalla Award Competition
- PhD student admission committee: 2023 ORIE, 2024 CAM
- Serving as a reviewer for Transactions on Machine Learning Research, Management Science, Manufacturing & Service Operations Management, Production and Operations Management, INFORMS Journal of Computing, International Conference of Machine Learning, Conference on Neural Information Processing Systems