Kyra (Jingyi) Gan

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RESEARCH INTERESTS

- Methodologies: optimization, causal inference, machine learning
- Application: precision medicine, mobile health

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., 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

EMPLOYMENT

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

- Under the supervision of Susan A. Murphy

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

AWARDS

- 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
- Internal CMU Nomination, 2021 Apple Scholars in AI/ML PhD fellowship

REFEREED CONFERENCE PROCEEDINGS

- **Greedy Approximation Algorithms for Active Sequential Hypothesis Testing.**
  NeurIPS 2021
  Kyra Gan*, Su Jia*, and Andrew Li

- **Causal Inference with Selectively Deconfounded Data.**
  AISTATS 2021
  Kyra Gan, Andrew Li, Zachary Lipton, and Sridhar Tayur

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

- **Data Visualization of Agent-Based Modeling of Virus Spread.**
  INFOCOMP 2017
  Jingyi Gan and Dominique Thiébaut.

- **Toward a Liquid Biopsy: Greedy Approximation Algorithms for Active Sequential Hypothesis Testing.**
  Submitted to *Operations Research*
  Preliminary version will appear in the proceedings of NeurIPS 2021
  Winner, 2021 INFORMS Pierskalla Best Paper Award
  Kyra Gan*, Su Jia*, Andrew Li, and Sridhar Tayur

- **Causal Inference with Selectively Deconfounded Data.**
  Preliminary version appeared in the proceedings of AISTATS 2021
  Management Science 1st round decision: major revision
  Kyra Gan, Andrew Li, Zachary Lipton, and Sridhar Tayur.

- **Personalized Treatment for Opioid Use Disorder.**
  To be submitted to *Operations Research*
  2021 CHOW Best Paper in the Category of Operations Research and Management Science
  Finalist, 2019 IBM Service Science Best Student Paper Award
  Kyra Gan, Alan Scheller-Wolf, and Sridhar Tayur.

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

- **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

- **Contextual bandit with budgeted context reveal** with Esmaeil Keyvanshokooh, and Susan A. Murphy

- **Efficient latent confounder discovery with prior knowledge** with Jacqueline Maasch, Weishen Pan, Chang Su, Volodymyr Kuleshov, and Fei Wang

- **Causal fairness in liver transplants** with Violet Chen, Nil-Jana Akpinar, and Agni Orfanoudaki

- **A review paper: reinforcement learning in medical research and care** with Daoming Lyu, Susan Murphy, and Fei Wang

- **Personalized Treatment for Opioid Use Disorder**
  CHOW Workshop 2021, Virtual, June
  Canadian Operations Research Society Annual Conference 2021, Virtual, June
  INFORMS Annual Conference 2020, Virtual, November
  INFORMS Annual Conference 2019, Seattle, WA, October
  INFORMS Healthcare Conference 2019, Cambridge MA, July

- **Causal Inference with Selectively Deconfounded Data**
  INFORMS Annual Conference 2021, Anaheim, CA
  MSOM Annual Conference, Virtual, June 2021

- **Toward a Liquid Biopsy: Greedy Approximation Algorithms for Active Sequential Hypothesis Testing**
  INFORMS Annual Conference 2021, Anaheim, CA
  INFORMS Annual Conference 2022, Indianapolis, IN

- **Greedy Approximation Algorithms for Active Sequential Hypothesis Testing**
  Workshop on Quantifying Uncertainty: Stochastic, Adversarial, and Beyond, *Simons Institute for the Theory of Computing*, September 2022
  Statistics Colloquium, *Harvard University*, October 2022

- **Toward a Liquid Biopsy: Greedy Approximation Algorithms for Active Sequential Hypothesis Testing**
  Cornell Young Researchers Workshop 2021, Ithaca, NY, October 7-9

- **Causal Inference with Selectively Deconfounded Data**
  AISTATS 2021,Virtual, April
  NeurIPS 2019 Causal ML Workshop, Vancouver, BC, Canada, December

- **Greedy Approximation Algorithms for Active Sequential Hypothesis Testing**
  NeurIPS 2021, Virtual
  mDOT Annual Conference, November 2022, Memphis, TN

- **Machine Learning Algorithms for Predicting Hospital Readmissions in Sickle Cell Disease**
  American Society of Hematology Annual Conference 2019, Orlando, FL, December

- **Data Visualization of Agent-Based Modeling of Virus Spread**
  National Conference on Undergraduate Research, 2017

TEACHING

- **Undergraduate Mathematical Modeling for Consulting, Instructor**   Jan - May 2021
  Rating: 4.33/5.0
  Developed the course material in Jupyter Notebook and Gurobipy
  Lectures consisted of business applications and live coding demos
  Students were evaluated on ten homeworks, two exams and one group project

- **As Teaching Assistant at CMU**
  - **Machine Learning for Business Analytics** (Undergraduate),   Aug - Dec 2020
    with Prof. Andrew Li and Prof. Benjamin Moseley
    Help develop the course materials including slides, homework, and exams in R
    Held office hours and graded homework and exams
  - **Machine Learning for Business Analytics** (Undergraduate),   Aug - Dec 2021
    with Prof. Andrew Li; graded and held office hours
  - **Machine Learning for Business Applications** (MSBA), March - June 2019, 2020, 2021
    with Prof. Zachary Lipton; developed and graded homework and exams
  - **Machine Learning for Business** (MBA),   June - July 2020
    with Prof. Zachary Lipton; developed and graded homework and exams
  - **Programming in R and Python** (MSBA),   Oct - Dec 2019, 2020
    with Prof. Zachary Lipton; developed and graded homework and exams
  - **Financial Optimization** (MSCF),   Aug - Oct 2019, 2020
    with Prof. Javier Peña; graded and proofread Chinese translation of the textbook
  - **Six Sigma Tools and Techniques** (MBA),   Oct - Dec 2019, 2020
    with Prof. Alan Scheller-Wolf; grader
  - **Advanced Stochastic Analysis and Applications** (Ph.D.),   Aug - Dec 2019
    with Prof. Mor Harchol-Balter; graded, held office hours, and led recitations
  - **Business, Society & Ethics** (Undergraduate),   Jan - May 2019, 2020
    with Prof. Joseph Hornack; grader
  - **Business Law** (Undergraduate),   Jan - May 2020
    with Prof. Joseph Hornack; grader

- **As Teaching Assistant in Smith College**
  - **Number Theory, Calculus I, Abstract Algebra, Introduction to Probability**

COMMUNITY
SERVICE

- Co-chairing 2022 INFORMS Pierskalla Award Competition