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Contact

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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

Preprints

• Contextual Bandits with Budgeted Information Reveal.

Submitted to NeurIPS 2023

Kyra Gan, Esmaeil Keyvanshokooh, Xueqing Liu, and Susan A. Murphy

• Kernel Debiased Plug-in Estimation

Submitted to NeurIPS 2023

Brian Cho¹, Kyra Gan, Ivana Malenica, and Yaroslav Mukhin

SELECTED Work in Progress

- Online uniform risk time sampling with predictors with Xueqing Liu, Esmaeil Keyvanshokooh, and Susan A. Murphy
- Efficient latent confounder discovery with prior knowledge with Jacqueline Maasch, Weishen Pan, Shantanu Gupta, 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

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.

Journal Papers

• Toward a Liquid Biopsy: Greedy Approximation Algorithms for Active Sequential Hypothesis Testing.

Submitted to $Management\ Science$

Winner, 2021 INFORMS Pierskalla Best Paper Award

Kyra Gan*, Su Jia*, Andrew Li, and Sridhar Tayur

• Causal Inference with Selectively Deconfounded Data.

Management Science 2nd round decision: major revision Kyra Gan, Andrew Li, Zachary Lipton, and Sridhar Tayur.

• Personalized Treatment for Opioid Use Disorder.

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

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

SELECTED TALKS

• 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

• Contextual Bandits with Budgeted Information Reveal

 $IMSI\ workshop\ on\ Machine\ Learning\ and\ Artificial\ Intelligence\ for\ Personalized\ Medicine,\ April\ 2023$

POSTER PRE-SENTATIONS

• 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

¹Alphabetical orders

• 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),
 With Prof. Joseph Hornack; grader
- Business Law (Undergraduate), with Prof. Joseph Hornack; grader

Jan - May 2020

• As Teaching Assistant in Smith College

o Number Theory, Calculus I, Abstract Algebra, Introduction to Probability

COMMUNITY SERVICE

• Co-chairing 2022 INFORMS Pierskalla Award Competition