Anna Guo

(Updated October 9, 2025)

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Research Goal: Develop statistical methods that yield robust causal conclusions in the face of mounting data challenges, including missing data, unmeasured confounding, high-dimensionality, and beyond, by leveraging insights from causal graphical models and semiparametric statistics.

Education

Emory University — Atlanta, GA, USA
Ph.D. in Biostatistics — Aug. 2021 – May. 2026 (anticipated)
Advisor: Dr. Razieh Nabi
Committee Members: Dr. Adam Glynn, Dr. David Benkeser, Dr. Howard Chang
Dissertation Topic: Causal Inference Methods for Confounding, Missing Data, and Multiple Exposures

Yale Univeristy — New Haven, CT, USA
Master of Science in Biostatistics — Aug. 2019 – May. 2021

University of Wisconsin Madison — Madison, WI, USA
Visiting Student Program in Mathematics — Sep. 2017 – Dec. 2017

Zhejiang Normal University — Jinhua, ZJ, China
Bachelor of Science in Mathematics — Sep. 2015 – June. 2019

Publications

4. Rachel Leong, Nisha J Dave, Daniel P Griffith, **Anna Guo**, Kirk A Easley, John R Galloway, Thomas R Ziegler, Vivian M Zhao, "Incidence of catheter-related bloodstream infections with sodium citrate lock therapy in adult patients receiving home parenteral nutrition: A descriptive cohort study." *Journal of Parenteral and Enteral Nutrition (JPEN)*, 2025. [Link]

3. **Anna Guo**, Jiwei Zhao, Razieh Nabi, "Sufficient Identification Conditions and Semiparametric Estimation under Missing Not at Random Mechanisms." *Proceedings of the 39th Conference on Uncertainty in Artificial Intelligence (UAI)*, 2023. [Link]

2. Emma Zang, Poh Lin Tan, Thomas Lyttelton, **Anna Guo**, "Impacts of the COVID-19 Lockdown on Gender Inequalities in Time Spent on Paid and Unpaid Work in Singapore." *Population and Development Review*, 2023. [Link]
   *Featured (selected): The Straits Times (Singapore)

1. Emma Zang, **Anna Guo**, Christina Pao, Nancy Lu, Bei Wu, Terri R Fried, "Trajectories of General Health Status and Depressive Symptoms Among Persons with Cognitive Impairment in the United States." *Journal of Aging and Health*, 2022. [Link]

Preprints

2. **Anna Guo**, Razieh Nabi, " Average Causal Effect Estimation in DAGs with Hidden Variables: Extensions of Back-Door and Front-Door Criteria." *R&R under Journal of Machine Learning Research (JMLR)*, 2024. [Link]

1. **Anna Guo**, David Benkeser, Razieh Nabi, "Targeted Machine Learning for Average Causal Effect Estimation Using the Front-Door Functional." *R&R under Journal of the Royal Statistical Society Series B (JRSSB)*, 2023. [Link]

Talks and Presentations

14. Poster, American Causal Inference Conference (ACIC) May, 2025
Average causal effect estimation and efficiency gains via equality constraints in the causal "Napkin" graph

13. Talk, International Biometric Conference (IBC) Dec, 2024
Average causal effect estimation in DAGs with hidden variables: extensions of back-door and front-door criteria

12. Poster, Georgia Statistics Day Oct, 2024
Average causal effect estimation in DAGs with hidden variables: extensions of back-door and front-door criteria

11. Poster, Graduate Students Poster Session at the Emory BIOS 60th Anniversary Celebration Oct, 2024
Average causal effect estimation in DAGs with hidden variables: extensions of back-door and front-door criteria

10. Talk, Joint Statistical Meetings (JSM) Aug, 2024
Targeted machine learning for average causal effect estimation using the front-door functional

9. Talk, Joint Statistical Meetings (JSM) Aug, 2024
Targeted machine learning for average causal effect estimation using the front-door functional

8. Talk, American Causal Inference Conference (ACIC) May, 2024
Targeted machine learning for average causal effect estimation using the front-door functional

7. Poster, CFAR Synergy Seminar Feb, 2024
Targeted machine learning for average causal effect estimation using the front-door functional

6. Invited Talk, Emory Department of Quantitative Theory and Methods Networking Symposium Nov, 2023
Targeted machine learning for average causal effect estimation using the front-door functional

5. Poster, Georgia Statistics Day Oct, 2023
Targeted machine learning for average causal effect estimation using the front-door functional

4. Talk, Joint Statistical Meetings (JSM) Aug, 2023
Sufficient identification conditions and semiparametric estimation under missing not at random mechanisms

3. Poster, Conference on Uncertainty in Artificial Intelligence (UAI) Aug, 2023
Sufficient identification conditions and semiparametric estimation under missing not at random mechanisms

2. Poster, American Causal Inference Conference (ACIC) May, 2023
Sufficient identification conditions and semiparametric estimation under missing not at random mechanisms

1. Poster, European Causal Inference Meeting (Eurocim) April, 2023
Sufficient identification conditions and semiparametric estimation under missing not at random mechanisms

Software

- `flexCausal`: An R package for causal effect estimation via double de-biased ML for a broad set of causal graphs.
- `fdcausal`: An R package for front-door causal effect estimation via targeted learning.

Professional Services

Reviewer

- Biometrics ($\times$ 1)
- Causal Learning and Reasoning ($\times$ 3)
- Conference on Uncertainty in Artificial Intelligence ($\times$ 1)
- Transactions on Machine Learning Research ($\times$ 2)

Session Chair

- "Causal Inference" Session at International Biometric Conference (IBC) 2024

Others

- Poster Judge for BIOS MSPH/MPH Thesis-Capstone Poster Presentation 2025
- Student volunteer of Georgia Statistics Day 2024

Teaching Experience

Emory University:

- BIOS 545: R Programming, *Teaching Assistant* — Spring 2025
- BIOS 526: *Guest Lecture* — Fall 2024
  Intro to causal inference
- BIOS 545: R Programming, *Teaching Assistant* — Fall 2024
- DATA-550: Data Science Toolkit, *Teaching Assistant* — Spring 2024
- BIOS-760R: *Guest Lecture* — Fall 2023
  Targeted machine learning for average causal effect estimation using the front-door functional
- BIOS-760R: Advanced Causal Inference, *Teaching Assistant* — Fall 2023
- BIOS-761: Causal Inference, *Teaching Assistant* — Spring 2023
- BIOS-760R, *Guest Lecture* — Fall 2022
  Missing Not At Random: A Cross-Sectional Model
- BIOS-522: Survival Analysis Methods, *Teaching Assistant* — Fall 2022

Lanxi No.1 High School:

- Integrated Mathematics II, Intern Math Teacher — Fall 2018

Honors and Awards

- Emory Laney Gradate School Travel Grant
- University of Wisconsin Madison Exchange & Visiting International Student Academic Excellence Award
- Zhejiang Normal University Overseas Study Special Award (With 21500$ scholarship)
- Zhejiang Province Government Scholarship (Top 3% of students within the province)
- Zhejiang Normal University Outstanding Student First Prize Scholarship (Top 5%)

Industrial Experience

- Sanofi — Boston, USA
  Biostatistician Internship @ Rare Disease — May, 2025 - Aug, 2025
- Apple — Cupertino, USA
  Data Scientist Internship @ Ads Platform — May, 2024 - Aug, 2024
- Knowbox Technology Co., Ltd. — Beijing, China
  Data Analyst Internship — Jul, 2018 - Aug, 2018