Maggie **Wang**

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Education

2021–2026 **Stanford University**, Stanford, CA
PhD Biomedical Data Science

2017–2021 **Johns Hopkins University**, Baltimore, MD
BS Biomedical Engineering, BS Computer Science (double major)

Research

2021–2026 **Stanford University**, Stanford, CA
PhD Candidate, Biomedical Data Science, advised by Michael Baiocchi

Causal Inference & Experimental Design Methodology

- Developed Inspection-Guided Randomization (IGR), a novel framework for performing restricted randomization with complex design desiderata combinations, such as minimizing interference while maintaining covariate balance; released an open source Python implementation [J3].
- Defined new causal estimands and derived a minimax optimal stepped double wedge design for evaluating algorithm-assisted decision-making when effects vary over repeated algorithm exposure [P1].

Health Interventions & Outcome Evaluation

- Quantified under-referral for high-risk chronic kidney disease patients by extracting a cohort of over 150,000 patients from administrative claims data and analyzing referral rates across risk strata [J6].
- Analyzed the association between depression and co-use of tobacco and cannabis products by applying multivariate logistic regression and post-hoc comparison analyses to national online survey data from over 6,000 adolescents and adults [J4].
- Estimated the effect of Woebot's therapeutic AI chatbot on substance abuse outcomes using data from a randomized controlled trial by applying linear regression with inverse-probability weighting to adjust for differential dropout [J2].

Safe & Interpretable Machine Learning

- Built an interactive Streamlit tool letting non-technical users make fast model weight edits to a trained concept bottleneck model (avg. 34 sec), improving out-of-distribution accuracy by 10% [J5].
- Developed a novel method to upper bound the generalizability of medical prediction models under realistic constraints on the observability of the selection bias mechanism and the target distribution [J1].

2025-2026 **Stanford HAI AI Policy Working Group**, Stanford, CA

- Evaluating the benefits of AI in education, health, worker productivity, and scientific advancement, through a nationwide consumer survey and interviews with enterprise clients of frontier AI companies.

2025 **Center for Democracy & Technology (CDT)**, Washington, D.C.
Fellow, AI Governance Lab

- Synthesized risk-management practices across the AI industry, assessing how companies define and disclose risk appetites and tolerances [O1].

Publications

**equal contribution*

Peer-Reviewed Journal & Conference Papers

[J1] Kara Liu, **Maggie Wang**, et al. "A practical upper bound on selection bias effects in medical prediction models". *KDD* (2026). DOI: 10.1145/3770855.3818112.

[J2] Judith J. Prochaska, **Maggie Wang**, et al. "A Relational Agent for Treating Substance Use in Adults: A Randomized Controlled Trial with a Psychoeducational Comparator". *Journal of Substance Use and Addiction Treatment* (2026). DOI: 10.1016/j.josat.2026.209993.

[J3] **Maggie Wang** et al. "Inspection-guided Randomization: A Flexible and Transparent Restricted Randomization Framework for Better Experimental Design". *Journal of Educational and Behavioral Statistics* (2025). DOI: 10.3102/10769986251342292.

[J4] Shivani Mathur Gaiha, **Maggie Wang**, et al. "Depression screening outcomes among adolescents, young adults, and adults reporting past 30-day tobacco and cannabis use". *Addictive Behaviors* (2024). DOI: 10.1016/j.addbeh.2024.108076.

[J5] Mert Yuksekgonul, **Maggie Wang**, et al. "Post-hoc Concept Bottleneck Models". *ICLR* (2023). arXiv: 2205.15480. (notable top 25%).

[J6] **Maggie Wang***, Samson Peter*, et al. "Underutilization of Nephrology Referral at High Kidney Failure Risk Levels". *JAMA Network Open* (2022). DOI: 10.1001/jamanetworkopen.2022.25797.

Preprints

[P1] **Maggie Wang** and Michael Baiocchi. "Evaluating algorithm-assisted human decision-making over repeated algorithm exposure: Recommendations for effect estimands and experimental design". *arXiv* (2026). arXiv: 2607.27701. (under review at *Biostatistics*).

Other Writing

[O1] **Maggie Wang**. "What Are They Willing to Risk? Why AI Companies Need to Make Their Risk Appetites More Legible to the Public". *Center for Democracy & Technology Blog* (Aug. 2025).

Contributed Talks

[T1] "Evaluating Algorithm-Assisted Human Decision-Making Over Repeated Algorithm Exposure: Recommendations for Effect Estimands and Experimental Design"

Oral, Joint Statistical Meetings (Aug. 2026)
Oral, American Causal Inference Conference (May 2026)

[T2] "Inspection-guided Randomization: A Flexible and Transparent Restricted Randomization Framework for Better Experimental Design"

Oral, Joint Statistical Meetings (Aug. 2025)

Awards & Honors

2025 **Stanford HAI Tech Ethics & Policy Fellowship**
Awarded to 10-15 Stanford graduate students annually. Selected students are placed in tech policy fellowship positions across D.C., from Congress to the Executive Branch to leading think tanks.

2023 **National Science Foundation Graduate Research Fellowship**
5-year fellowship awarded to roughly 2,500 graduate students in STEM.

2021 **Stanford Graduate Fellowship, Smith Fellow**
3-year fellowship awarded to roughly 100 outstanding Stanford graduate students in science and engineering.

2017 **Hodson Trust Scholarship**
4-year merit-based scholarship covering half tuition, awarded to 20 Johns Hopkins undergraduates annually.

Teaching

2026 (forthcoming) **Mini-course co-instructor**, Causal Inference in Healthcare: Experimental, Quasi-experimental and Non-experimental Approaches
Stanford University

2022–2025 **Guest lecturer on causal inference**, BIOMEDIN 215: Data Science for Medicine
Stanford University

2024 **Teaching assistant**, R Programming for Data Science
Virtual (hosted by UC Berkeley)

2022–2023 **Teaching assistant**, BIOMEDIN 215: Data Science for Medicine
Stanford University

2020 **Teaching assistant**, EN.601.433: Introduction to Algorithms
Johns Hopkins University

2019 **Teaching assistant**, EN.580.243: Linear Signals and Systems
Johns Hopkins University

Service

2021–2025 **Mentor & Organizer**, Stanford Biomedical Data Science Peer-to-Peer Application Mentoring Program
Stanford University
Provided feedback on essay drafts for prospective MS and PhD applicants who identified as underrepresented minorities. Organized mentor recruitment and mentor-mentee matchings (2022-2023).

2023–2025 **Mentor**, Stanford Biosciences NSF Graduate Research Fellowship Peer-to-Peer Mentoring Program
Stanford University
Mentored an applicant for the 2023-2024 and 2024-2025 NSF GRFP cycles, providing multiple rounds of feedback on their personal statement and research statement.

2022 **Mentor**, Community College Outreach Program Bootcamp
Stanford University
Met weekly in a virtual small group format with community college students seeking to transfer into 4-year programs. Provided advice on essays, internships, and resumes.