

# Jieru Shi

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<https://herashi.github.io/>

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EDUCATION	<b>Ph.D. in Biostatistics</b> , University of Michigan Supervised by Dr. Walter Dempsey and Dr. Zhenke Wu. <b>M.S. in Biostatistics</b> , University of Michigan <b>B.S. in Statistics</b> Sichuan University • Exchange student, Statistics, City University of Hong Kong	Aug 2020–Aug 2023 Aug 2018–Apr 2020 Sep 2014–Jun 2018 Jan–May 2016
ACADEMIC APPOINTMENTS	<b>Postdoctoral Research Associate</b> , StatsLab, University of Cambridge Supervised by Dr. Qingyuan Zhao on causal inference <b>Graduate Research Assistant</b> , University of Michigan Principal Investigators: Brahmajee K. Nallamothu & Jessica R. Golbus • The Virtual AppLication-Supported ENvironment To INcrease Exercise During Cardiac Rehabilitation Study (VALENTINE) Study <b>Graduate Student Consultant</b> , University of Michigan Director: Kerby Shedden • Consulting for Statistics, Computing and Analytic Research (CSCAR) <b>Graduate Research Assistant</b> , University of Michigan Principal Investigators: Srijan Sen & Amy Bohnert • The PROviding Mental health Precision Treatment (PROMPT) Precision Health Study	Sep 2023–present May 2022–May 2023 Sep 2021–May 2022 Aug 2020–Aug 2021
TEACHING	<b>Causal inference</b> • Part III 16-lecture class in DPMMS, University of Cambridge. <b>Statistics</b> • Part IB Supervision in DPMMS, University of Cambridge. <b>Graphical Models: Statistical Learning and Causal Inference</b> • Guest lecture in Cambridge Part III Systems Biology, Modelling, and Analysis of Networks. <b>Causal Inference</b> • Part III Example Class in DPMMS, University of Cambridge. <b>Statistical Modeling</b> • Part II Supervision in DPMMS, University of Cambridge. <b>Time-Varying Causal Effect Estimation in Mobile Health Studies</b> • Guest lecture in BIOS 653, Biostatistics, University of Michigan.	Jan–Mar 2025 Jan–Mar 2024 Jan 2024 Oct–Dec 2023 Oct–Dec 2023 Nov 2022
PUBLICATIONS	[1] <b>J Shi</b> , Z Wu, W Dempsey, “Assessing time-varying causal effect moderation in the presence of cluster-level treatment effect heterogeneity and interference”. <i>Biometrika</i> , Volume 110, Issue 3, 2023, Pages 645–662, doi: 10.1093/biomet/asac065. [2] Golbus, J. R., Gupta, K., Luff, E., <b>Shi, J.</b> , Dempsey, W., ... & Nallamothu, B. K. “A randomized trial of a mobile health intervention to augment cardiac rehabilitation”. 2023, <i>npj Digit. Med.</i> 6, 173. doi: 10.1038/s41746-023-00921-9. [3] Gupta, K., <b>Shi, J.</b> , Dempsey, W., Mukherjee, B., Kheterpal, S., Klasnja, P., ... & Golbus, J. 2023, “Contextually tailored text messages to augment cardiac rehabilitation: the Virtual AppLication-supported ENvironment To INcrease Exercise (VALENTINE) study”. <i>Cardiovascular Digital Health Journal</i> , 4(5), S4-S5. doi: 10.1016/j.cvdhj.2023.08.010	

- [4] Golbus, Jessica R., **Jieru Shi**, Kashvi Gupta, Rachel Stevens, V.Swetha E. Jeganathan, Evan Luff, Thomas Boyden, et al. 2024, “Text Messages to Promote Physical Activity in Patients With Cardiovascular Disease: A Micro-Randomized Trial of a Just-In-Time Adaptive Intervention”. *Circulation: Cardiovascular Quality and Outcomes*, e010731. doi: 10.1161/CIRCOUTCOMES.123.010731.
- [5] Huch, E., **Shi, J.**, Abbott, M. R., Golbus, J., Moreno, A., & Dempsey, W.. 2024, “RoME: A Robust Mixed-Effects Bandit Algorithm for Optimizing Mobile Health Interventions.” *Advances in Neural Information Processing Systems*, 37, 128280-128329.

PREPRINTS

- [6] **J Shi**, Z Wu, W Dempsey, “Estimating time-varying direct and indirect causal excursion effects for binary outcomes”. 2022, *arXiv: 2212.01472 [stats.ME]*
- [7] **J Shi**, Z Wu, W Dempsey, “Incorporating auxiliary variables to improve the efficiency of time-varying treatment effect estimation”. 2023, *arXiv: 2306.17260 [stats.ME]* (Journal of the American Statistical Association, **Major Revision**)
- [8] **J Shi**, W Dempsey, “A meta-learning method for estimation of causal excursion effects to assess time-varying moderation”. 2023, *arXiv: 2306.16297 [stats.ME]* (Biometrics, **Major Revision**)

WORKING PAPERS

- [9] **J Shi**, Z Gan, Q Zhao, J Wang, “Empirical Bayes Transfer Learning in Genome-Wide Association Studies”. 2025+.
- [10] **J Shi**, R Shah, “Conditional Independence Testing for Time Series”. 2025+.
- [11] H Lei, **J Shi**, H Cao, Q Zhao, “Causal Inference on Genetic Heritability”. 2025+.
- [12] Gupta K, Atluri N, Basu T, Luff E, **Shi J**,..., Golbus J. “Characteristics of Tailored Text Messages that Maximize Physical Activity amongst Cardiac Rehabilitation Enrollees”. 2025+.

TALKS AND PRESENTATIONS

- [1] *Joint Statistical Meeting, virtual* (contributed talk, Aug 2021), “Assessing time-varying causal effect moderation in the presence of cluster-level treatment effect heterogeneity”.
- [2] *American Causal Inference Conference (ACIC)* (poster, May 2022), “Assessing time-varying causal effect moderation in the presence of cluster-level treatment effect heterogeneity”.
- [3] *Joint Statistical Meeting, Washington D.C.* (contributed talk, Aug 2022), “Assessing time-varying causal effect moderation in the presence of cluster-level treatment effect heterogeneity”.
- [4] *e-HAIL Symposium: Artificial Intelligence and Health, University of Michigan* (poster, Sep 2022), “The Virtual AppLication-Supported ENvironment To INcrease Exercise (VALENTINE) during cardiac rehabilitation study”.
- [5] *ENAR Spring Meeting* (contributed talk, Mar 2023), “Estimating time-varying direct and indirect causal excursion effects for binary outcomes”.
- [6] *Michigan Student Symposium for Interdisciplinary Statistical Sciences (MSSISS)* (contributed talk, Mar 2023), “A meta-learning method for estimation of causal excursion effects to assess time-varying moderation”.
- [7] *American Causal Inference Conference (ACIC)* (poster, May 2023), “A meta-learning method for estimation of causal excursion effects to assess time-varying moderation”.
- [8] *International Conference of Statistics and Data Science (ICSIDS)* (contributed talk, Dec 2023), “A meta-learning method for estimation of causal excursion effects to assess time-varying moderation”.
- [9] *Enhancing models with machines? – Causal machine learning in economics, statistics and computer science* (invited talk, July 2024), “A novel method for assessing time-varying moderation”.
- [10] *Joint Statistical Meeting* (contributed talk, Aug 2024), “A meta-learning method for estimation of causal excursion effects to assess time-varying moderation”.
- [11] *International Conference of Statistics and Data Science (ICSIDS)* (contributed talk, Dec 2024), “Incorporating auxiliary variables to improve the efficiency of time-varying treatment effect estimation”.

- [12] *UCL Statistical Science Seminar* (invited talk, Feb 2025), “Conditional Independence testing in time series”.
- [13] *Seminar of Statistics at MAP5, Université Paris Cité* (invited talk, April 2025), “Conditional Independence testing in time series”.
- [14] *EuroCim* (poster, April 2025), “Conditional Independence testing in time series”.

EDITORIAL  
SERVICE

**Ad-Hoc Reviewer**

- Biometrics ×2
- Journal of the American Statistical Association ×1
- Biostatistics ×1
- Nature Communications ×1

EXTERNAL  
PROFESSIONAL  
ACTIVITIES

**Local Organization Committee Member**

*Jun 2023*

- International Chinese Statistical Association (ICSA) 2023 Applied Statistics Symposium

**Organizer**

*Sep 2022–Apr 2023*

- Graduate Student Working Group in the Biostatistics Department, University of Michigan

**Program Committee Member**

*Dec 2021*

- Causal Inference Challenges in Sequential Decision Making Workshop at NeurIPS

**Program Co-Organizer**

*Dec 2020*

- Machine Learning for Mobile Health Workshop at NeurIPS

AWARDS

**Honorable Mention**

*Mar 2023*

- The oral presentation session, 2023 Michigan Student Symposium for Interdisciplinary Statistical Sciences (MSSISS) at Ann Arbor, MI.

**Student Travel Award Recipient**

*Jan 2023*

- 2023 the 14th International Conference on Health Policy Statistics (ICHPS) at Scottsdale, AZ.

**Junior Researcher Travel Grant**

*May 2022*

- American Causal Inference Conference (ACIC) at Berkeley, CA.

**Rackham Travel Grant**

- Joint Statistics Meeting (JSM) at Washington, D.C.

*Aug 2022*

- Joint Statistics Meeting (JSM), virtual.

*Aug 2021*

LANGUAGES

**Mandarin Chinese** (*native*), **English** (*working proficiency*)