

Jieru Shi

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

EDUCATION	Ph.D. in Biostatistics , University of Michigan Supervised by Dr. Walter Dempsey and Dr. Zhenke Wu. M.S. in Biostatistics , University of Michigan B.S. in Statistics 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	Postdoctoral Research Associate , StatsLab, University of Cambridge Supervised by Dr. Qingyuan Zhao on causal inference Graduate Research Assistant , 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 Graduate Student Consultant , University of Michigan Director: Kerby Shedden • Consulting for Statistics, Computing and Analytic Research (CSCAR) Graduate Research Assistant , 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	Causal inference • Part III 16-lecture class in DPMMS, University of Cambridge. Statistics • Part IB Supervision in DPMMS, University of Cambridge. Graphical Models: Statistical Learning and Causal Inference • Guest lecture in Cambridge Part III Systems Biology, Modelling, and Analysis of Networks. Causal Inference • Part III Example Class in DPMMS, University of Cambridge. Statistical Modeling • Part II Supervision in DPMMS, University of Cambridge. Time-Varying Causal Effect Estimation in Mobile Health Studies • 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	<p>[1] J Shi, 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.</p> <p>[2] Golbus, J. R., Gupta, K., Luff, E., Shi, J., 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.</p> <p>[3] Gupta, K., Shi, J., 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</p>	

- [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](https://doi.org/10.1161/CIRCOUTCOMES.123.010731).
- [5] EK Huch, **J Shi**, MR Abbott, JR Golbus, A Moreno, WH Dempsey. “Debiased machine learning and network cohesion for doubly-robust differential reward models in contextual bandits”. 2024, *arXiv*: [2312.06403](https://arxiv.org/abs/2312.06403) [stats.ML] (**Accepted** by the NeurIPS, 2024).
- PREPRINTS
- [6] **J Shi**, Z Wu, W Dempsey, “Estimating time-varying direct and indirect causal excursion effects for binary outcomes”. 2022, *arXiv*: [2212.01472](https://arxiv.org/abs/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](https://arxiv.org/abs/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](https://arxiv.org/abs/2306.16297) [stats.ME] (**Under Review** at Biometrics)
- WORKING PAPERS
- [9] **J Shi**, Z Gan, Q Zhao, J Wang, “Empirical Bayes Transfer Learning in Genome-Wide Association Studies”. 2024+.
- [10] **J Shi**, R Shah, “Conditional Independence Testing for Time Series”. 2024+.
- [11] H Lei, **J Shi**, H Cao, Q Zhao, “Causal Inference on Genetic Heritability”. 2024+.
- [12] L Bell, **J Shi**, “Bridging Cultural and Methodological Divides: Integrating Traditional Experimental Design and Causal Inference Approaches”. 2024+.
- 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] *Causal Inference Reading Group at the University of Cambridge* (Feb 2024), “Incorporating auxiliary variables to improve the efficiency of time-varying treatment effect estimation”.
- [10] *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”.
- [11] *Joint Statistical Meeting* (contributed talk, Aug 2024), “A meta-learning method for estimation of causal excursion effects to assess time-varying moderation”.
- [12] *ENAR* (invited talk, Mar 2025), “Empirical Bayes Transfer Learning in Genome-Wide Association

Studies”.

EDITORIAL SERVICE	Ad-Hoc Reviewer <ul style="list-style-type: none">• Biometrics ×1• Journal of the American Statistical Association ×1• Biostatistics ×1	
EXTERNAL PROFESSIONAL ACTIVITIES	Local Organization Committee Member <ul style="list-style-type: none">• International Chinese Statistical Association (ICSA) 2023 Applied Statistics Symposium Organizer <ul style="list-style-type: none">• Graduate Student Working Group in the Biostatistics Department, University of Michigan Program Committee Member <ul style="list-style-type: none">• Causal Inference Challenges in Sequential Decision Making Workshop at NeurIPS Program Co-Organizer <ul style="list-style-type: none">• Machine Learning for Mobile Health Workshop at NeurIPS	<i>Jun 2023</i> <i>Sep 2022–Apr 2023</i> <i>Dec 2021</i> <i>Dec 2020</i>
AWARDS	Honorable Mention <ul style="list-style-type: none">• The oral presentation session, 2023 Michigan Student Symposium for Interdisciplinary Statistical Sciences (MSSISS) at Ann Arbor, MI. Student Travel Award Recipient <ul style="list-style-type: none">• 2023 the 14th International Conference on Health Policy Statistics (ICHPS) at Scottsdale, AZ. Junior Researcher Travel Grant <ul style="list-style-type: none">• American Causal Inference Conference (ACIC) at Berkeley, CA. Rackham Travel Grant <ul style="list-style-type: none">• Joint Statistics Meeting (JSM) at Washington, D.C.• Joint Statistics Meeting (JSM), virtual.	<i>Mar 2023</i> <i>Jan 2023</i> <i>May 2022</i> <i>Aug 2022</i> <i>Aug 2021</i>
LANGUAGES	Mandarin Chinese (<i>native</i>), English (<i>working proficiency</i>)	