Zhichao Jiang

School of Mathematics
Sun Yat-sen University
Guangzhou, Guangdong 510275, China

Phone: (609) 937 4315
Email: jiangzhch7@mail.sysu.edu.cn

POSITIONS

Professor (Sep 2022 –)
School of Mathematics
Sun Yat-sen University

Assistant Professor (Sep 2019 – Sep 2022)
Department of Biostatistics and Epidemiology, School of Public Health and Health Sciences
University of Massachusetts, Amherst

Postdoctoral Fellow (Sep 2018 – Sep 2019)
Department of Government and Department of Statistics, Harvard University
Advisor: Prof. Kosuke Imai

Postdoctoral Research Associate (Sep 2016 – Sep 2018)
Department of Politics and Center for Statistics and Machine Learning, Princeton University
Advisor: Prof. Kosuke Imai

Visiting Student (Sep 2013 – Sep 2014)
Department of Epidemiology, Harvard T.H. Chan School of Public Health
Advisor: Prof. Tyler J. VanderWeele

EDUCATION

Ph.D., Statistics – Peking University, 2016
Dissertation: Identification of principal stratification causal effects and surrogate evaluation
Advisor: Prof. Zhi Geng

B.S., Statistics, *B.A., Economics* – Peking University, 2011

RESEARCH INTERESTS

Algorithmic fairness;
Instrumental variable approaches: latent confounders, identifiability;
Principal stratification: non-compliance, surrogate, truncation-by-death;
Randomization-based analysis of experiments;
Interference: spillover effect, contagious effect and infectiousness effect;
Measurement error and misclassification in causal inference;
Missing data: non-ignorable missing data mechanisms.

GRANT SUPPORT

- National Science Foundation (2021–2023). Evaluating the Impacts of Machine Learning Algorithms on Human Decisions. (Methodology, Measurement, and Statistics Program). Co-PI (with Kosuke Imai and James Greiner)

- Cisco Systems, Inc. (2020–2022). Evaluating the Impacts of Algorithmic Recommendations on the Fairness of Human Decisions. (Ethics in AI). Subcontract PI (with Kosuke Imai and James Greiner)
- UMass Interdisciplinary Faculty Research Awards (2020-2022). Intelligent 3D Optical Coherence Tomography for Assessment of Transplant Organ Viability. Co-PI (with Yu Chen and Xian Du)

PUBLICATIONS

$*$ Corresponding authorship

Preprints

- **Jiang, Z.***, Chen, S. and Ding, P. An Instrumental Variable Method for Point Processes: Generalized Wald Estimation Based on Deconvolution. *Submitted*
- Ben-Michael, E., Greiner, J. Imai, K. and **Jiang, Z.** Safe Policy Learning Through Extrapolation: Application to Pre-Trial Risk Assessment. *Technical report available at* `https://arxiv.org/abs/2011.07677`.

Refereed Journal Articles

22. **Jiang, Z.** and Imai, K. (accepted) Statistical Inference and Power Analysis for Direct and Spillover Effects in Two-Stage Randomized Experiments. *Biometrics*
21. Imai, K. and **Jiang, Z.** (accepted) Principal Fairness for Human and Algorithmic Decision-Making. *Statistical Science*
20. **Jiang, Z.**, Yang, S. and Ding, P. (2022). Multiply Robust Estimation of Causal Effects Under Principal Ignorability. *Journal of the Royal Statistical Society: Series B (Statistical Methodology)*, **84**, 1423–1445.
19. Imai, K., **Jiang, Z.**, Greiner, J., Halen, R. and Shin, S. (accepted). Experimental Evaluation of Algorithm-Assisted Human Decision-Making: Application to Pretrial Public Safety Assessment (With Discussion). *Journal of the Royal Statistical Society: Series A (Statistics in Society).*
18. **Jiang, Z.** and Ding, P. (2021). Identification of Causal Effects Within Principal Strata Using Auxiliary Variables. *Statistical Science*, **36**, 493–508.
17. Imai, K., **Jiang, Z.*** and Malani, A. (2021). Causal inference with interference and noncompliance in the two-stage randomized experiments. *Journal of the American Statistical Association*, **116**, 632–644.
16. **Jiang, Z.** and Ding, P. (2020). Measurement errors in the binary instrumental variable model. *Biometrika*, **107**, 238–245.
15. Imai, K. and **Jiang, Z.*** (2020). Identification and sensitivity analysis of contagion effects with randomized placebo-controlled trials. *Journal of the Royal Statistical Society: Series A (Statistics in Society)*, **183**, 1637–1657.
14. Imai, K. and **Jiang, Z.** (2019). Comment: The Challenges of Multiple Causes. *Journal of the American Statistical Association*, **114**, 1605–1610.
13. **Jiang, Z.** and VanderWeele, T. J. (2019). Causal mediation analysis in the presence of a misclassified binary exposure. *Epidemiologic Methods.*

12. Imai, K., and **Jiang, Z.*** (2018). A sensitivity analysis for missing outcomes due to truncation-by-death under the matched-pairs design. *Statistics in Medicine*, **37**, 2907–2922.
11. **Jiang, Z.** and Ding, P. (2018). Using missing types to improve partial identification with application to a study of HIV prevalence in Malawi. *Annals of Applied Statistics*, **12**, 1831–1852.
10. Li, W., **Jiang, Z.**, Geng, Z. and Zhou, XH. (2018). Identification of causal effects in the presence of measurement error and latent confounding. *Biometrical Journal*, **60**, 498–515.
9. **Jiang, Z.** and Ding, P. (2017). The Directions of Selection Bias. *Statistics and Probability Letters*, **125**, 104–109.
8. **Jiang, Z.**, Ding, P. (2016). Robust modeling using non-elliptically contoured multivariate t distributions. *Journal of Statistical Planning and Inference*, **177**, 50–63.
7. **Jiang, Z.**, Ding, P. and Geng, Z. (2016). Principal causal effect identification and surrogate endpoint evaluation by multiple trials. *Journal of the Royal Statistical Society: Series B (Statistical Methodology)*, **78**, 829–848.
6. **Jiang, Z.** and VanderWeele, T. J. (2015). When is the difference method conservative for mediation? (With discussion). *American Journal of Epidemiology*, **182**, 105–108.
5. **Jiang, Z.** and VanderWeele, T. J. (2015). Bounds or sensitivity analysis? Which to prefer for mediation? (Rejoinder to discussion). *American Journal of Epidemiology*, **182**, 115–117.
4. **Jiang, Z.**, Ding, P. and Geng, Z. (2015). Qualitative evaluation of associations by the transitivity of the association signs. *Statistica Sinica*, **25**, 1065–1079.
3. **Jiang, Z.** and VanderWeele, T. J. (2015). Causal mediation analysis in the presence of a mismeasured outcome. *Epidemiology*, **26**, e8–e9.
2. **Jiang, Z.**, VanderWeele T. J. (2015). Additive interaction in the presence of a mismeasured outcome. *American Journal of Epidemiology*, **181**, 81–82.
1. **Jiang, Z.**, Chiba, Y. and VanderWeele, T. J. (2014). Monotone confounding, monotone treatment selection, and monotone treatment response. *Journal of Causal Inference*, **2**, 1–12.

INVITED PRESENTATIONS

- Safe Policy Learning through Extrapolation
  Pacific Causal Inference Conference, virtual conference, Sep 2022
- Statistical Inference and Power Analysis for Direct and Spillover Effects in Two-Stage Randomized Experiments
  Joint Statistical Meetings, virtual conference, invited, Aug 2021
- Experimental Evaluation of Computer-Assisted Human Decision Making
  Pacific Causal Inference Conference, virtual conference, Sep 2020
  ICSA Applied Statistics Symposium, virtual conference, Sep 2021
  Department of Statistics, University of Illinois Urbana-Champaign, Nov 2021
  Department of Biostatistics, Peking University, Nov 2021
  IMS Workshop: Causal Inference with Big Data, virtual, Dec 2021
  Southwestern University of Finance and Economics, March 2022
  BIRS Workshop, May 2022
  Joint Statistical Meetings, Aug 2022
- Causal Inference with Interference and Noncompliance in the Two-Stage Randomized Experiments

Applied Statistics Workshop, Harvard University, Nov 2018
Joint Statistical Meetings, Vancouver, Canada, Aug 2018
Peking University, Beijing, China, Jul 2018
Atlantic Causal Inference Conference, Pittsburgh, PA, May 2018

- Using Missing Types to Improve Partial Identification with Missing Binary Outcomes

  NESS, Hartford, CT, May 2019
  ENAR, Philadelphia, PA, Mar 2019
  EcoSta, HongKong, Jun 2018

- Measurement errors in the binary instrumental variable model

  EcoSta, Taichung, Jun 2019

- Principal Surrogate Evaluation Using Multiple Trials

  Department of Mathematics and Statistics, University of Massachusetts Amherst, Nov 2019
  Joint Statistical Meetings, virtual conference, topic-contributed, Aug 2020

PROFESSIONAL ACTIVITIES

Journal reviews: *American Journal of Epidemiology, Annals of Applied Statistics, Annals of Statistics, Biometrics, Biometrika, Biostatistics, Biostatistics & Epidemiology, Computational Statistics and Data Analysis, Epidemiologic Methods, Journal of the American Statistical Association, Journal of the Royal Statistical Society, Nature Communication, Statistical Methods & Applications, Statistics in Medicine, Statistical Methods in Medical Research, Scandinavian Journal of Statistics, Journal of Causal Inference, Journal of Business & Economic Statistics, International Journal of Epidemiology, Proceedings of the National Academy of Sciences, The Review of Economics and Statistics.*

Consultant: The Program for Quantitative and Analytical Political Science at Princeton University, 2017–2018

Seminar organizer: Causal reading group, Harvard University, 2018

Session organizer: Causal inference with interference, *Atlantic Causal Inference Conference*, Pittsburgh, PA, May 2018; Causal inference under interference, *Joint Statistical Meetings*, virtual, Aug 2021

Session chair: Recent developments for causal effect estimation in observational studies, *ICSA Applied Statistics Symposium*, New Brunswick, NJ, Jun 2018

TEACHING

Linear model, *Instructor*, Fall 2022, Sun Yat-sen University.

Causal inference: special topics, *Instructor*, Spring 2020, Spring 2022, University of Massachusetts Amherst.

Introduction to data science using R, *Instructor*, Fall 2020, Spring 2021, Fall 2021, University of Massachusetts Amherst.