Shanshan Luo

Contact Information

Department of Applied Statistics
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Employment

September 2022 - present *Lecturer*
School of Mathematics and Statistics, Beijing Technology and Business University, Beijing, China

Education

September 2017 - July 2022 *Ph.D. in Statistics*
School of Mathematical Sciences, Peking University, Beijing, China.
Advisor: Prof. Yangbo He

September 2013 - July 2017 *B.S. in Mathematics*
School of Mathematical Sciences, Capital Normal University, Beijing, China.

Research Interests

My research primarily focuses on causal inference, with specific interest in the following areas:

1. Causal Effect: covariate adjustment, data fusion, instrumental variables, measurement error, principal stratification, propensity scores, spillover effects

2. Causal Attribution: individual attribution analysis, continuous outcome attribution

3. Causal Discovery: Bayesian networks, causal mechanisms of latent confounders, proximal variable selection

4. Missing Data: nonignorable missing data

Publications

1. Shanshan Luo, Wei Li*, and Yangbo He. Causal inference with outcomes truncated by death in multiarm studies. *Biometrics*, 2023; 79(1): 502-513.

2. Wei Li, Shanshan Luo*, Yangbo He, and Zhi Geng. Subgroup analysis using Bernoulli-gated hierarchical mixtures of experts models. *Statistics in Medicine*, 2023; 42(26): 4681–4695.

3. Wei Li, Shanshan Luo, and Wangli Xu*. Calibrated regression estimation using empirical likelihood under data fusion. *Computational Statistics & Data Analysis*, 2024; 190: 107871.

4. Honglei Zhang, Shuyi Wang, Haoxuan Li, Chunyuan Zheng, Xu Chen, Li Liu, Shanshan Luo*, and Peng Wu*. Uncovering the limitations of eliminating selection bias for recommendation: missing mechanisms, disentanglement, and identifiability. *ICDE*, Utrecht, Netherlands, 2024.

5. Feng Xie, Zhengming Chen, Shanshan Luo*, Wang Miao, Ruichu Cai, and Zhi Geng. Automating the selection of proxy variables of unmeasured confounders. *ICML*, Vienna, Austria, 2024. (Spotlight)

6. Kang Shuai, Shanshan Luo, Yue Zhang, Feng Xie, and Yangbo He*. Identification and estimation of causal effects using non-Gaussianity and auxiliary covariates. To appear in *Statistica Sinica*, 2024.

7. Kang Shuai, Shanshan Luo*, Wei Li, and Yangbo He. Identifying causal effects using instrumental variables from the auxiliary population. To appear in *Statistica Sinica*, 2024.

8. Shanshan Luo, Wei Li*, Wang Miao, and Yangbo He*. Identification and estimation of causal effects in the presence of confounded principal strata. To appear in *Statistics in Medicine*, 2024.

9. Shaojie Wei, Chao Zhang, Zhi Geng, and Shanshan Luo*. Identifiability and estimation for potential-outcome means with misclassified outcomes. To appear in *Mathematics*, 2024.

10. Shanshan Luo, Jiaqi Min, Wei Li, Xueli Wang*, and Zhi Geng. A comparative analysis of different adjustment sets using propensity score based estimators. To appear in *Computational Statistics & Data Analysis*, 2024.

11. Peng Wu, Shanshan Luo*, and Zhi Geng. On the comparative analysis of average treatment effects estimation via data combination. To appear in *Journal of the American Statistical Association*, 2023.

Working Papers

1. Shanshan Luo#, Yechi Zhang#, and Wei Li*. Multiply robust estimation of causal effects using linked data, *arXiv*:2309.08199v1, 2023.

2. Shanshan Luo, Mengchen Shi, Wei Li*, Xueli Wang, and Zhi Geng. Efficiency-improved doubly robust estimation with non-confounding predictive covariates. *arXiv*:2402.14438v1, 2024.

3. Shanshan Luo, Yixuan Yu, Chunchen Liu, Feng Xie*, and Zhi Geng. Assessing the causes of continuous effects by posterior effects of causes. *arXiv*:2404.05246v1, 2024.

4. Wei Li, Yuan Liu, Shanshan Luo*, and Zhi Geng. Causal inference with outcomes truncated by death and missing not at random. *arXiv*:2406.10554v2, 2024.

5. Shanshan Luo, Wei Li, Xueli Wang, Shaojie Wei*, and Zhi Geng. Assessing interactive causes of an occurred outcome due to two binary exposures. *Submitted*, 2024.

*Corresponding author, #Co-first author.

Awards
Grants

Outstanding Graduate of Beijing, 2017.

National Scholarship, 2021.

Outstanding Graduate of Beijing, 2022.

National Natural Science Foundation of China, 2025 to 2027.

Teaching Experience

Applied Stochastic Processes: Fall 2022

Multivariate Statistical Analysis: Spring 2023, Fall 2023, Spring 2024, Fall 2024

Causal Inference: Spring 2023, Fall 2023, Fall 2024