Ruoxuan Xiong

Department of Quantitative Theory & Methods
581 PAIS Building, 36 Eagle Row, Atlanta, GA 30322, US
Email: ruoxuan.xiong@emory.edu
Homepage: http://www.ruoxuanxiong.com/
Born: September, 1992

Current Position

2021- *Assistant Professor*, Quantitative Theory & Methods, and by courtesy, Economics, and Information Systems & Operations Management, Emory University

Research Areas

Experiment Design, Causal Inference, Panel Data, Machine Learning

Previous Employment

2020-2021 *Postdoctoral Fellow*, Graduate School of Business, Stanford University

Education

2020 **Ph.D.** in **Management Science and Engineering**, Stanford University

2014 **B.S.** in **Urban and Rural Planning** & **Mathematics**, Peking University

Working Papers

∗ Asterisk indicates equal contribution or alphabetical authorship

Data-Driven Switchback Experiments: Theoretical Tradeoffs and Empirical Bayes Designs, by R. Xiong, A. Chin, and S. J. Taylor
Preliminary version: Bias-Variance Tradeoffs for Designing Simultaneous Temporal Experiments, presented at *KDD Workshop on Causal Discovery, Prediction, and Decision 2023*

Efficient Treatment Effect Estimation in Observational Studies under Heterogeneous Partial Interference, by Z. Qu*, R. Xiong* , J. Liu, and G. Imbens

Publications

Journal Articles

forthcoming **Optimal Experimental Design for Staggered Rollouts**, by R. Xiong, S. Athey, M. Bayati, and G. Imbens, *Management Science*
2020 MSOM Student Paper Competition Finalist

Target PCA: Transfer Learning Large Dimensional Panel Data, by J. Duan*, M. Pelger*, and R. Xiong*, *Journal of Econometrics*

2023 **Federated Causal Inference in Heterogeneous Observational Data**, by R. Xiong, A. Koenecke, M. Powell, Z. Shen, J.T. Vogelstein, and S. Athey, *Statistics in Medicine*

Large Dimensional Latent Factor Modeling with Missing Observations and Applications to Causal Inference, by R. Xiong and M. Pelger, *Journal of Econometrics*
2019 George Nicholson Student Paper Competition Honorable Mention

2022 **Interpretable Sparse Proximate Factors for Large Dimensions**, by M. Pelger* and R. Xiong*, *Journal of Business & Economic Statistics*

State-Varying Factor Models of Large Dimensions, by M. Pelger* and R. Xiong*, *Journal of Business & Economic Statistics*

Conference Articles

2024 **Contrastive Balancing Representation Learning for Heterogeneous Dose-Response Curves Estimation**, by M. Zhu, A. Wu, H. Li, R. Xiong, B. Li, X. Yang, X. Qin, P. Zhen, J. Guo, F. Wu, and K. Kuang, *AAAI*

2023 **Stable Estimation of Heterogeneous Treatment Effects**, by A. Wu, K. Kuang, R. Xiong, B. Li, and F. Wu, *ICML*

Treatment Effect Estimation with Unmeasured Confounders in Data Fusion, by A. Wu, K. Kuang, R. Xiong, M. Zhu, Y. Liu, B. Li, F. Liu, Z. Wang, and F. Wu, *AAAI*

2020 **Stable Prediction with Model Misspecification and Agnostic Distribution Shift**, by K. Kuang, R. Xiong, P. Cui, S. Athey, and B. Li, *AAAI*

2018 **Stable Predictions across Unknown Environments**, by K. Kuang, P. Cui, S. Athey, R. Xiong, and B. Li, *KDD (Oral)*

Other Articles on Healthcare Applications

2021 **Alpha-1 adrenergic receptor antagonists for preventing acute respiratory distress syndrome and death from cytokine storm syndrome**, by A. Koenecke, M. Powell, R.

Xiong, Z. Shen, N. Fischer, S. Huq, A.M. Khalafallah, B. Caffo, E.A. Stuart, N. Papadopoulos, K.W. Kinzler, B. Vogelstein, S. Zhou, C. Bettegowda, M.F. Konig, B. Mensh, J.T. Vogelstein, and S. Athey, *eLife*

The association between Alpha-1 adrenergic receptor antagonists and in-hospital mortality from COVID-19, by L. Rose, L. Graham, A. Koenecke, M. Powell, R. Xiong, Z. Shen, B. Mench, K.W. Kinzler, C. Bettegowda, B. Vogelstein, S. Athey, J.T. Vogelstein, M.F. Konig, and T.H. Wagner, *Frontiers in Medicine*

Ten Rules for Conducting Retrospective Pharmacoepidemiological Analyses: Example COVID-19 Study, by M. Powell, A. Koenecke, J.B. Byrd, A. Nishimura, M.F. Konig, R. Xiong, S. Mahmood, V. Mucaj, C. Bettegowda, L. Rose, S. Tamang, A. Sacarny, B. Caffo, S. Athey, E.A. Stuart, and J.T. Vogelstein, *Frontiers in Pharmacology*

2020   **Preventing cytokine storm syndrome in COVID-19 using α-1 adrenergic receptor antagonists** , by M.F. Konig, M. Powell, V. Staedtke, R. Bai, D.L. Thomas, N. Fischer, S. Huq, A.M. Khalafallah, A. Koenecke, R. Xiong, B. Mensh, N. Papadopoulos, K.W. Kinzler, B. Vogelstein, J.T. Vogelstein, S. Athey, S. Zhou, and C. Bettegowda, *Journal of Clinical Investigation*

Idle Manuscripts

Deep Learning Stock Volatility with Google Domestic Trends, by R. Xiong, E. Nichols, and Y. Shen

Invited Talks

2024   **Seminars**: University of Maryland (Econometrics, scheduled)
Conferences: ASSA (discussant), Georgia Econometrics Workshop, ENAR Spring Meeting, Design and Analysis of Experiments Conference (scheduled)

2023   **Seminars**: Yale (Econometrics), NYU (Political Science), Lyft Rideshare Labs, Amazon
Conferences: North American Summer Meeting of the Econometric Society, University of Rochester Econometrics Mini-Conference, Conference on Health IT and Analytics, American Causal Inference Conference, Methodology, Organization, and Management workshop, New York Camp Econometrics XVII, INFORMS Annual Meeting

2022   **Seminars**: Microsoft Research, Boston University (CISE), University of Washington (Foster School of Business), NUS (IORA)
Conferences: NBER-NSF Time Series Conference, American Causal Inference Conference, Artificial Intelligence/Operations Research Workshop II, Revenue Management and Pricing Conference, INFORMS Annual Meeting, Marketplace Innovation Workshop, SIAM Annual Meeting

2021   **Seminars:** Online Causal Inference Seminar, London Business School (Management Science and Operations), Lyft Rideshare Labs
Conferences: NBER-NSF Time Series Conference, Conference on Digital Experimentation, INFORMS Annual Meeting, INFORMS Healthcare, Manufacturing and Service Operations Management Conference, Marketplace Innovation Workshop, North American Summer Meeting of the Econometric Society, Symposium on Data Science and Statistics, ASSA Annual Meeting

2020   **Seminars:** UT Austin (Econometrics), Columbia (IEOR), University of Toronto (Operations Management), University of Florida (Industrial and Systems Engineering), Cornell Tech, Cornell (ORIE), UCSB (Statistics and Applied Probability), UC Berkeley (Risk Management), Stony Brook (Applied Mathematics and Statistics), Boston University (Finance), Chicago Booth (Operations Management), USC Marshall (Data Sciences and Operations), University of Minnesota (Industrial and Systems Engineering), Emory (Quantitative Theory and Methods), USC (Industrial and Systems Engineering), Stanford GSB (OIT), Shanghai Jiao Tong University Antai College (Econometrics)
Conferences: INFORMS Annual Meeting, European Winter Meeting of the Econometric Society

2019   **Seminars:** UBC Sauder School of Business (Operations and Logistics), UIC Business (Information and Decision Sciences), Stanford (RAIN), Stanford AI for Human Impact Lab
Conferences: Conference on Digital Experimentation, INFORMS Annual Meeting, Cornell ORIE Young Researchers Workshop, Marketplace Innovation Workshop, Annual SoFiE Conference, SIAM Conference on Financial Mathematics and Engineering

2018   **Conferences:** NBER-NSF Time Series Conference, Ninth Western Conference on Mathematical Finance, INFORMS Annual Meeting, California Econometrics Conference, SoFiE Summer School in Chicago on Machine Learning and Finance, North American Summer Meeting of the Econometric Society

2017   **Conferences:** Conference on Mathematical Modeling in Finance, Eighth Western Conference on Mathematical Finance

Teaching

Machine Learning	*Fall 2023, Spring 2024*
Quantitative Finance	*Fall 2022, Spring 2023, Fall 2023*
Causal Inference and Machine Learning	*Fall 2021, Spring 2022, Fall 2022*

Professional Service

Reviewer for journals: Annals of Applied Statistics, Biometrics, Biometrika, Econometrics Journal, European Financial Management, Journal of Business & Economic Statistics, Journal of Econometrics, Journal of Educational and Behavioral Statistics, Journal of Financial Econometrics, Journal of Machine Learning Research, Journal of the American Statistical Association, Journal of Political Economy, Management Science, Manufacturing & Service Operations Management, Operations Research, Review of Economic Studies, Statistical Methods & Applications, and Transactions on Big Data

Reviewer for conferences: ICML (2020-2024), NeurIPS (2021-2022), ICLR (2021-2023), INFORMS Manufacturing and Service Operations Management Conference (2023-2024)

Reviewer for proposal: NSF Proposal, and Research Grants Council (RGC) of Hong Kong

2016-2017   President of INFORMS Stanford chapter

Academic Honors

2022   ICML Top 10% of Reviewers
2020   MSOM Student Paper Competition Finalist
2020   Stanford MS&E Course Assistant Award
2019   George Nicholson Student Paper Competition Honorable Mention
2019-2020   Stanford MS&E Fellowship
2019-2020   Krishnan Shah Fellowship
2018-2019   William Linville Memorial Fellowship
2017-2018   Charles and Katharine Lin Graduate Fellowship
2014-2015   Stanford SOE Fellowship