Ran Xu

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ACADEMIC APPOINTMENTS

Assistant Professor
Department of Allied Health Sciences, University of Connecticut **August 2019 -**
Affiliated Faculty, Department of Statistics, University of Connecticut **May 2021 -**

Postdoctoral Research Associate **2017-May 2019**
Grado Department of Industrial and Systems Engineering, Virginia Tech

EDUCATION

Ph.D., Measurement and Quantitative Methods **2011-2016**
College of Education, Michigan State University
Dissertation Title: "IDENTIFICATION, ESTIMATION, AND SENSITIVITY ANALYSIS OF CONTAGION EFFECTS USING LONGITUDINAL SOCIAL NETWORK DATA."
Dissertation Advisor: Professor Kenneth A. Frank

B.S., Mathematics (Minor in Psychology) **2007-2011**
Hefei University of Technology

RESEARCH INTERESTS

Quantitative Methods, Computational Social Science, Systems Science, Health Education, Behavior, Prevention and Policy.

PEER-REVIEWED PUBLICATIONS

1. Rahmandad, H., **Xu, R.**, & Ghaffarzadegan, N. (Accepted) Enhancing Long-term Forecasting: Learning from COVID-19 Models. *PLOS Computational Biology*.

2. Pagoto, S., Schroeder, M., **Xu, R.**, Waring, M. E., Groshon, L., Goetz, J., Idiong, C., Troy, H., Divito, J. (Accepted) A Facebook-delivered weight loss intervention using open enrollment: Randomized pilot feasibility trial. *JMIR Formative Research*.

3. Frank, K. A., Lin, Q., Maroulis, S. J., Mueller, A. S., **Xu, R.**, Rosenberg, J.M., Hayter, C. S., Mahmoud, R.A., Kolak, M., Dietz, T., Zhang, L. (2022). Response to" Three Comments on the RIR method". *Journal of clinical epidemiology*, S0895-4356.

4. McKee, S. L., **Xu, R.**, & Schwartz, M. B. (2022). Assessing the Effects of a Statewide Training Initiative on Local School Wellness Policies. *Health Promotion Practice*, 15248399211070808.

5. Chen, X., Johnson, E., Kulkarni, A., Ding, C., Ranelli, N., Chen, Y., & **Xu, R.** (2021). An Exploratory Approach to Deriving Nutrition Information of Restaurant Food from Crowdsourced Food Images: Case of Hartford. *Nutrients*, 13(11), 4132.

6. Song, Y., Lin, Q., Kwon, K. H., Choy, C. H., & **Xu, R.** (2021). Contagion of offensive speech online: An interactional analysis of political swearing. *Computers in Human Behavior, 107046*.

7. **Xu, R.***, Rahmandad, H.*, Gupta, M., DiGennaro, C., Ghaffarzadegan, N., Amini, H., & Jalali, M. S. (2021). Weather, air pollution, and SARS-CoV-2 transmission: a global analysis. *The Lancet Planetary Health, 5(10), e671-e680.* * Co-equal first authors.

8. **Xu, R.** (2021). Estimating Social Influence Using Latent Space Adjusted Approach in R. *The R Journal*.

9. Wang, H., **Xu. R.**, Qu, S., Schwartz, M. B., Adams, A., Chen, X. (2021). Health inequities in COVID-19 vaccination among the elderly: Case of Connecticut. *Journal of Infection and Public Health*.

10. Wang, Y., Chen, X., Yang, Y., Cui, Y., & **Xu, R.** (2021). Risk perception and resource scarcity in food procurement during the early outbreak of COVID-19. *Public Health*.

11. McKee, S. L., Gurganus, E. A., Atoloye, A. T., **Xu, R.**, Martin, K., & Schwartz, M. B. (2021). Pilot testing an intervention to educate and promote nutritious choices at food pantries. *Journal of Public Health*, 1-8.

12. **Xu, R.**, & Cavallo, D. (2021). Social Network Analysis of the Effects of a Social Media–Based Weight Loss Intervention Targeting Adults of Low Socioeconomic Status: Single-Arm Intervention Trial. *Journal of Medical Internet Research*, 23(4), e24690.

13. Frank, K. A., Lin, Q., Maroulis, S. J., Mueller, A. S., **Xu, R.**, Rosenberg, J.M., Hayter, C. S., Mahmoud, R.A., Kolak, M., Dietz, T., Zhang, L. (2021). Hypothetical case replacement can be used to quantify the robustness of trial results. *Journal of Clinical Epidemiology*.

14. Busenbark, J. R., Frank, K. A., Maroulis, S. J., **Xu, R.**, & Lin, Q. (2021). Quantifying the Robustness of Empirical Inferences in Strategic Management: The Impact Threshold of a Confounding Variable and Robustness of Inference to Replacement. *In Research in Times of Crisis*. Emerald Publishing Limited.

15. **Xu, R.,** Lakeh, A. B., & Ghaffarzadegan, N. (2021). Examining the characteristics of impactful research topics: A case of three decades of HIV-AIDS research. *Journal of Informetrics*, 15(1), 101122.

16. Schwartz, M., **Xu, R.**, Martin, K. (2020). Food Pantries Select Healthier Foods After Nutrition Information is Available on their Food Bank's Ordering Platform. *Public Health Nutrition*. 1-22.

17. Wang, Y., **Xu, R.**, Schwartz, M., Ghosh, D., & Chen, X. (2020). COVID-19 and Retail Grocery Management: Insights from a Broad-based Consumer Survey. *IEEE Engineering Management Review*.

18. Cooksey-Stowers, K., Martin K. S., Read, M., **Xu, R.**, Schwartz, M. (2020) Supporting Wellness at Pantries (SWAP): changes to inventory in six food pantries over one year. *Journal of Public Health, 1-9*.

19. **Xu, R.**, Frank, K. A. (2020) Sensitivity Analysis for Network Observations with Applications to Inferences of Social Influence Effects. *Network Science*. 1-26. doi:10.1017/nws.2020.36

20. **Xu, R.** (2020). Statistical methods for the estimation of contagion effects in human disease and health networks. *Computational and Structural Biotechnology Journal,* 18,1754-1760.

21. **Xu, R.**, Blanchard, B. E., McCaffrey, J. M., Woolley, S., Corso, L. M., & Duffy, V. B. (2020). Food Liking-Based Diet Quality Indexes (DQI) Generated by Conceptual and Machine Learning Explained Variability in Cardiometabolic Risk Factors in Young Adults. *Nutrients*, 12(4), 882.

22. Pagoto, S., Waring, M. E., & **Xu, R.** (2019). A Call for a Public Health Agenda for Social Media Research. *Journal of Medical Internet Research*, 21(12), e16661.

23. **Xu, R.**, Frank, K. A., Maroulis, S., Rosenberg, J. M. (2019). konfound: Command to quantify robustness of causal inferences. *The Stata Journal*, 19(3), 523-550.

24. Kim, S., Wallsworth, G., **Xu, R.**, Frank, K. A., Schneider, B., Jacob, B., Dynarski, S. (2019). The Impact of the Michigan Merit Curriculum on High School Math Course Taking. *Educational Evaluation and Policy Analysis*, 0162373719834067.

25. **Xu, R.**, Deshon, R. P., Deshop, C. (2019). Challenges and Opportunities in the Estimation of Dynamic Models. *Organizational Research Methods*.

26. Ghaffarzadegan, N.*, & **Xu, R.*** (2019). Late retirement, early careers, and the aging of U.S. science and engineering professors. *PLOS ONE*, 13(12), e0208411. * Co-equal first authors.

27. **Xu, R.,** Ghaffarzadegan, N. (2018). Neuroscience bridging scientific disciplines in health: who builds the bridge, who pays for it? *Scientometrics*, 117(2), 1183-1204.

28. Ghaffarzadegan, N., **Xu, R.,** Larson, R. C., Hawley, J. D. (2018). Symptoms vs. Root Causes: A Needed Structural Shift in Academia to Help Early Careers. *BioScience*, 68(10), 744-745.

29. Frank, K. A.*, & **Xu, R.***, Penuel, W. R. (2018). Implementation of Evidence Based Practice in Human Service Organizations: Implications from Agent-Based Models. *Journal of Policy Analysis and Management*, 37(4), 867-895. * Co-equal first authors.

30. **Xu, R.** (2018). Alternative Estimation Methods for Identifying Contagion Effects using Longitudinal Social Network Data: A Latent-Space Adjusted Approach. *Social Networks, 54, 101-117.*

31. Song, Y., **Xu, R.** (2018). Affective Ties that Bind: Investigating the Affordances of Social Networking Sites for Commemoration of Traumatic Events. *Social Science Computer Review*, *0894439318770960.*

32. Ghaffarzadegan, N., Rad, A. A., **Xu, R.,** Middlebrooks, S. E., Mostafavi, S., Shepherd, M., Chambers, L., Boyum, T. (2018). Dell's SupportAssist Customer Adoption Model: Enhancing the Next Generation of Data-Intensive Support Services. *System Dynamics Review,* 33(3-4), 219-253.

33. **Xu, R.**, Frank, K. A. (2016). The Implications for Network Structure of Dynamic Feedback between Influence and Selection. *Social Computing, Behavioral-Cultural Modeling, and Prediction.* Springer International Publishing.

34. Moore, J. A., **Xu, R.**, Frank, K. A., Draheim, H., & Scribner, K. T. (2015). [Social network analysis of mating patterns in American black bears (Ursus americanus)](). *Molecular Ecology*, *24*(15), 4010-4022.

HANDBOOK CHAPTERS

35. *Frank, K. A., & ***Xu, R**. (2020). Causal Inference in Network Analysis: Navigating Dependencies and Alternative Explanations to Create Good Science. Chapter in *Oxford Handbook of Social Network Analysis*. *288-310.* *Co-equal first authors.

BOOK REVIEW

36. Frank, K. A., *Saw, G. K., & ***Xu, R**. (2016). Book review of "Causality in a Social World" by Guanglei Hong. *Observational Studies.* *Equal co-authors.

MANUSCRIPTS UNDER REVIEW

37. Let's Step Back From One P-Value: Statistical Testing considering Superpopulations. Under Review in *Statistics in Medicine*.

STATISTICAL PACKAGES

Rosenberg, J. M., **Xu, R.,** Frank, K. A. (2018). KONFOUND: R module to quantify robustness of causal inferences.
https://jrosen48.github.io/konfound
http://konfound-it.com/

Frank, K. A. & **Xu, R**. (2017). KONFOUND: Stata module to quantify robustness of causal inferences.
https://ideas.repec.org/c/boc/bocode/s458298.html

RESEARCH TALKS and TEACHING

Invited Research Talks

Workshop at The UConn Center for mHealth and Social Media   **2021**
"Introduction to Social Network Analysis in mHealth and Social Media Research"

Statistics colloquia, Department of Statistics, University of Connecticut   **2021**
"Identify Contagion Effects in Dynamic Social Networks: A latent-space adjusted approach"

The Center for Spatial Data Science, University of Chicago   **2020**
"The Modest Impact of Weather and Air Pollution on COVID-19 Transmission"

Workshop at The UConn Center for mHealth and Social Media (CHASM) 2020 Annual Conference   **2020**
"Introduction to Social Network Analysis in mHealth and Social Media Research"

Connecticut Convergence Institute for Translation in Regenerative Engineering   **2020**
"Identify Contagion Effects in Dynamic Social Networks: A latent-space adjusted approach"

Rudd Center for Food Policy & Obesity, *University of Connecticut*   **2019**
"Implementation of Supporting Wellness at Pantries (SWAP): Some Evidence from 25 Connecticut Food Pantries"

Quantitative Methods Workshop, University of Chicago   **2019**
"Importance of Model Specification for Causal Inference in Social Network Analysis"

Center for Human Resource Research, Ohio State University   **2018**
"Neuroscience Bridging Scientific Disciplines in Health: Who builds the Bridge, Who Pays for it?"

Dell EMC, Round Rock, Texas   **2017**
"A Smart System of Prediction and Solution of SupportAssist's Major Operational Problems"

Network Science Institute, Northeastern University   **2017**
"The Social Dynamics of Group Polarization during Diffusion"

NIH Office of Behavioral and Social Science Research, Washington D.C.   **2017**
"Research Trend for New BSSR Workforce"

Guest Lecturer
College of Education, Michigan State University   **2019**
- Lecture on Estimating Social Influence with Latent Space Adjusted Approach
College of Education, Lehigh University   **2018**
- Lecture on Advanced Topics in Social Network Analysis
Summer Institute, Peking University   **2014**
- Lecture on Social Network Analysis and Agent-Based Model
Social Network Analysis Seminar, Michigan State University   **2014**
- Lecture on Agent-Based Model
Social Network Analysis Seminar, Michigan State University   **2013**
- Lecture on Agent-Based Model

Instructor
AH/STAT 3005: Biostatistics for Health Professions   **2020 -**

AH 5095: Introduction to systems science and complexity   **2020 -**

Teaching Assistant
AERA Professional Development Workshop   **2018**
"What Would It Take to Change Your Inference? Quantifying the Discourse About Causal Inferences in the Social Sciences."

AERA Professional Development Workshop   **2017**
"Sensitivity Analysis: Quantifying the Discourse about Causal Inference."

CONFERENCE PRESENTATIONS

1. "An Exploratory Approach to Deriving Nutrition Information of Restaurant Food from Crowdsourced Food Images: Case of Hartford". 2022 National Big Data Health Science Conference

2. "Using social network analysis to understand the mechanisms of behavioral change in an online weight-loss intervention". Poster presentation at The UConn Center for mHealth and Social Media (CHASM) 2020 Annual Conference.

3. "How Funding Facilitates Interdisciplinary Research for Early Career Scientists: Evidence from Neuroscience". Institute for Research on Innovation and Science (IRIS) Summit, Ann Arbor. 2019

4. "The Network of Cross-Disciplinary Research in Health: Neuroscience Bridging Scientific Disciplines." Association for Public Policy Analysis & Management Fall Research Conference, Washington, D. C., 2018

5. "Alternative Estimation Methods for Identifying Contagion Effects using Longitudinal Social Network Data – A Latent Space Adjusted Approach." American Educational Research Association, New York. 2018

6. "The Network of Cross-disciplinary Research in Health: Neuroscience Bridging Scientific Disciplines." INFORMS conference, Houston, Texas. 2017

7. "The Micro-Dynamics of Network Leverage: Implications for Change Agents External to an Organization." International conference of the System Dynamics Society, Boston, Massachusetts. 2017

8. "Sensitivity analysis for biases in network observations." International Network for Social Network Analysis, Beijing, China, 2017.

9. "The Impact of the Michigan Merit Curriculum on High School Math Course-Taking." American Educational Research Association, San Antonio, Texas. 2017.

10. "The Implications for Network Structure of Dynamic Feedback between Influence and Selection." International Conference on Social Computing, Behavioral-Cultural Modeling, & Prediction and Behavior Representation in Modeling and Simulation, Washington D.C., 2016.

11. "Alternative Estimation Methods for Identifying Contagion Effects using Longitudinal Social Network Data." International Network for Social Network Analysis, Newport Beach, California, 2016.

12. "The Impact of the Michigan Merit Curriculum on High School Math Course-Taking." Association for Education Finance and Policy, Denver, Colorado, 2016.

13. "The Micro-Dynamics of Network Leverage: Implications for Change Agents External to a System." Midwest Sociology of Education, University of Notre Dame, 2014.

14. "The Micro-Dynamics of Network Leverage: Implications for Change Agents External to a System." International Network for Social Network Analysis, St. Petersburg, Florida, 2014.

OTHER SELECTED CONFERENCE PROCEEDINGS

15. "Discussion Networks and Collective Memory Building on Weibo." *International Communication Association,* Fukuoka, Japan. 2016.

16. "High School Transcript Study." Association for Education Finance and Policy, Washington D. C., 2015.

HONORS AND AWARDS

Excellence in Teaching Certificate, University of Connecticut	**2021**
Dissertation Completion Fellowship, Michigan State University	**2016**
Walker Hill Fellowship, College of Education, Michigan State University	**2013-2015**
Graduate Assistantship, Michigan State University	**2011-2016**

GRANTS

1. Quantifying the Robustness of Causal Inferences: Extensions and Application to Existing Databases. Sponsor: IES. $886,592. PI: Kenneth Frank. Role: Sub-recipient PI (Sub-award: $93,741). August 2022 – August 2025.

2. Validating a Nutrition Ranking System for Food Pantries Using the Healthy Eating Index-2015. Sponsor: Duke University. $9,962. PI: Caitlin Caspi. Role: Co-I. June 2021 – May 2022.

3. Single arm trial of a multi-component commercial digital weight loss program. Sponsor: WW International, Inc. $352,263. PI: Sherry Pagoto. Role: Co-I. January 2021 – January 2022.

4. Health Promotion in Howard County Maryland. Sponsor: The Horizon Foundation. $44,635. PI: Marlene Schwartz. Role: Senior Personnel. January 2020 – December 2020.

5. Developing a food image recognition technique to evaluate the nutrition information of restaurant foods and community food environment. Sponsor: College of Agriculture, Health and Natural Resources, University of Connecticut. $60,000. Role: PI. October 2020 – September 2023.

6. How mothers evaluate and spread information related to child nutrition on social media. Sponsor: College of Agriculture, Health and Natural Resources, University of Connecticut. $60,000. PI: Molly Waring. Role: Co-I. October 2019 – September 2022.

7. How Funding Facilitates Interdisciplinary Research for Early Career Scientists: Evidence from Neuroscience Research. Sponsor: IRIS, University of Michigan. $30,000. PI: Ran Xu. January 2019 – December 2019.

8. Shaping Health Research Workforce for Tomorrow: Understanding Career Path and Productivity of early-career health policy researchers. Sponsor: Institute for Society, Culture and Environment, Virginia Tech. $30,000. PI: Navid Ghaffarzadegan. Role: Co-I. July 2017 – June 2018.

9. Identification, Estimation, and Sensitivity Analysis of Longitudinal Social Network Data. Sponsor: Dissertation Completion Award, Michigan State University. $6000. PI: Ran Xu. May 2016 – September 2016.

PROFESSIONAL SERVICE

2019 NSF Panelists
2021 NSF Ad Hoc Reviewer
Guest Editor for Journal of Data Science

Journal Reviewer:
Physics Letter A
Educational Evaluation and Policy Analysis
Sociological Methods and Research
Ecology and Society
Network Science
Psychometrika
F1000Research
Journal of Educational and Behavioral Statistics
Journal of Policy Analysis and Management
American Journal of Education
Journal of Medical Internet Research
American Journal of Tropical Medicine and Hygiene
American Educational Research Journal
American Journal of Public Health
The R Journal