

Wenna Xi

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RESEARCH INTERESTS

Mental Health, Co-Location Networks, Social Networks, Activity Spaces/Patterns, Data Visualization, Spatial Statistics, Longitudinal Data, Bayesian Modeling and Computation, Correlated Data, Mixture Models.

EDUCATION

The Ohio State University, Columbus, OH

- Ph.D., Biostatistics Defended: Jul 2019; conferred: Dec 2019
 - *Advisor:* Catherine A. (Kate) Calder
 - *Dissertation:* Community Structure in Co-Location Networks
http://rave.ohiolink.edu/etdc/view?acc_num=osu1566156023255678
- M.S., Statistics Dec 2018
- M.S., Public Health Aug 2014
 - *Advisor:* Michael L. Pennell
 - *Thesis:* Comparing the Statistical Power of Analysis of Covariance after Multiple Imputation and the Mixed Model in Testing the Treatment Effect for Pre-Post Studies with Loss to Follow-Up http://rave.ohiolink.edu/etdc/view?acc_num=osu1403557167

University of Science and Technology of China, Hefei, China

- M.S., Biomathematics Jun 2012
 - *Advisor:* Yi Wang
 - *Thesis:* Principle of Competitive Exclusion in Chemostat with Almost Periodic/Quasiperiodic Nutrient Input

Northwest Normal University, Lanzhou, China

- B.S., Mathematics Jun 2010
 - *Thesis:* Some Problems of Modern Intraclass Correlation Coefficients in the Sight of the Original Definition

WORK EXPERIENCE

Weill Cornell Medicine

Postdoctoral Associate, Department of Healthcare Policy and Research Aug 2019 – Present

The Ohio State University

Research Associate, Center of Excellence in Regulatory Tobacco Science (OSU-CERTS) Sep 2015 – Aug 2018
Research Associate, College of Public Health May 2015 – Aug 2015
Teaching Associate, College of Public Health Aug 2014 – May 2015
Research Intern, Department of Otolaryngology May 2013 – Aug 2013

University of Science and Technology of China

Research Assistant, Department of Mathematics Feb 2012 – Jun 2012
Teaching Assistant, Department of Mathematics Feb 2011 – Jan 2012

PUBLICATIONS

Methodology

2. **Xi, W.**, Calder, C. A., and Browning, C. R. (2020b). Beyond activity space: Detecting communities in ecological networks. *Annals of the American Association of Geographers*, 110(6):1787–1806. <https://doi.org/10.1080/24694452.2020.1715779>
1. **Xi, W.**, Pennell, M. L., Andridge, R. R., and Paskett, E. D. (2018). Comparison of intent-to-treat analysis strategies for pre-post studies with loss to follow-up. *Contemporary Clinical Trials Communications*, 11:20–29. <https://doi.org/10.1016/j.conctc.2018.05.008>

Applications

8. **Xi, W.**, Banerjee, S., Penfold, R. B., Simon, G. E., Alexopoulos, G. S., and Pathak, J. (2020a). Healthcare utilization among patients with psychiatric hospitalization admitted through the emergency department (ED): A claims-based study. *General Hospital Psychiatry*, 67:92–99. <https://doi.org/10.1016/j.genhosppsych.2020.10.001>
7. Burgoon, M. L., Albani, T., Keller-Hamilton, B., Lu, B., Roberts, M. E., Craigmile, P. F., Browning, C., **Xi, W.**, and Ferketich, A. K. (2019). Exposures to the tobacco retail environment among adolescent boys in urban and rural environments. *The American Journal of Drug and Alcohol Abuse*, 45(2):217–226. <https://doi.org/10.1080/00952990.2018.1549562>
6. Sweet, L., Brasky, T. M., Cooper, S., Doogan, N., Hinton, A., Klein, E. G., Nagaraja, H., Quisenberry, A., **Xi, W.**, and Wewers, M. E. (2019). Quitting behaviors among dual cigarette and e-cigarette users and cigarette smokers enrolled in the tobacco user adult cohort. *Nicotine & Tobacco Research*, 21(3):278–284. <https://doi.org/10.1093/ntr/nty222>
5. Roberts, M. E., Keller-Hamilton, B., Hinton, A., Browning, C. R., Slater, M. D., **Xi, W.**, and Ferketich, A. K. (2019). The magnitude and impact of tobacco marketing exposure in adolescents' day-to-day lives: An ecological momentary assessment (EMA) study. *Addictive Behaviors*, 88:144–149. <https://doi.org/10.1016/j.addbeh.2018.08.035>
4. Quisenberry, A. J., Klein, E. G., Hinton, A., Doogan, N. J., Brasky, T. M., **Xi, W.**, Cooper, S., Nagaraja, H. N., and Wewers, M. E. (2018). E-cigarette and combustible tobacco use motivations among exclusive and dual e-cigarette users. *Tobacco Regulatory Science*, 4(4):63–72. <https://doi.org/10.18001/TRS.4.4.7>
3. Doogan, N. J., Cooper, S., Quisenberry, A. J., Brasky, T. M., Browning, C. R., Klein, E. G., Hinton, A., Nagaraja, H. N., **Xi, W.**, and Wewers, M. E. (2018). The role of travel distance and price promotions in tobacco product purchase quantity. *Health & Place*, 51:151–157. <https://doi.org/10.1016/j.healthplace.2018.03.009>
2. Brasky, T. M., Hinton, A., Doogan, N. J., Cooper, S. E., Nagaraja, H. N., **Xi, W.**, Shields, P. G., and Wewers, M. E. (2018). Characteristics of the tobacco user adult cohort in urban and rural Ohio. *Tobacco Regulatory Science*, 4(1):614–630. <https://doi.org/10.18001/TRS.4.1.8>
1. Wong, P., Wang, X., **Xi, W.**, Li, L., and Yu, X. (2014). Mothers do not enhance phonemic contrasts of mandarin lexical tones in child-directed speech. *The Journal of the Acoustical Society of America*, 135(4):2316–2316. <https://doi.org/10.1121/1.4877637>

Manuscripts Under Review

2. **Xi, W.**, Hinton, A., Lu, B., Krotki, K., Keller-Hamilton, B., Ferketich, A. K., and Sukasih, A. Analysis of combined probability and non-probability samples: A simulation evaluation and application to a teen smoking behavior survey. Submitted to *Journal of Applied Statistics*.
1. Quisenberry, A. J., Hinton, A., **Xi, W.**, Klein, E. G., Brasky, T. M., Cooper, S. E., Nagaraja, H. N., and Wewers, M. E. Flavor type associations and quitting behaviors in dual and ENDS-only users. Submitted to *Tobacco Regulatory Science*.

Manuscripts in Preparation

8. Xu, J., **Xi, W.**, Wang, F., and Pathak, J. The bidirectional association between Alzheimer's disease and mental illness: A review.
7. Khan, K. L., Luo, H., and **Xi, W.** Caution in the use of INLA in Bayesian spatial modeling.
6. **Xi, W.**, Zhang, H., Wu, Y., and Banerjee, S. An overall discrimination measure for survival models.
5. **Xi, W.**, Xu, J., and Pathak, J. Subtyping Alzheimer's disease on electronic health records and insurance claims data.
4. **Xi, W.**, Banerjee, S., Penfold, R. B., Simon, G. E., Alexopoulos, G. S., and Pathak, J. Spatial variation of predictors for suicide attempt among commercially insured patients in the US.
3. **Xi, W.**, Banerjee, S., Penfold, R. B., Simon, G. E., Alexopoulos, G. S., and Pathak, J. Pathways from suicidal ideation to suicide attempt among commercially insured patients in the US.
2. **Xi, W.**, Calder, C. A., and Browning, C. R. Bayesian non-negative matrix factorization for analyzing co-location networks.
1. **Xi, W.**, Pathak, J., and Banerjee, S. EHR Phenotyping of depressed patients: A hierarchical Bayesian latent variable modeling approach.

PRESENTATIONS

Talks

8. (*Forthcoming*) 20th WPA World Congress of Psychiatry, Bangkok, Thailand, Mar 2021.
 - "Patterns of Healthcare Utilization Among Patients with Psychiatric Hospitalization or Emergency Department (ED) Visits: A Claims-Based Study"
7. American Medical Informatics Association (AMIA) 2020 Annual Symposium, Virtual, Nov 2020.
 - "Healthcare Contacts Among Patients with Psychiatric Hospitalization Admitted Through the Emergency Department"
6. Joint Statistical Meetings (JSM), Virtual, Aug 2020.
 - "EHR Phenotyping of Depressed Patients: A Hierarchical Bayesian Latent Variable Modeling Approach"
5. Joint Statistical Meetings (JSM), Denver, CO, Jul 2019.
 - "Overlapping Activity Patterns and Community Detection in Ecological Networks"
4. Division of Biostatistics and Epidemiology, Department of Healthcare Policy and Research, Weill Cornell Medicine, Cornell University, New York, NY, May 2019.
 - "Overlapping Activity Patterns and Community Detection in Co-Location Networks"
3. Division of Biostatistics, Department of Preventive Medicine, Feinberg School of Medicine, Northwestern University, Chicago, IL, Apr 2019.
 - "Overlapping Activity Patterns and Community Detection in Co-Location Networks"
2. Observational Study Reading Group, Department of Statistics, The Ohio State University, Columbus, OH, Nov 2018.
 - "Community Detection for Co-Location Networks"
1. Seminar in Social Networks, Department of Sociology, The Ohio State University, Columbus, OH, Oct 2018.
 - "Detecting Communities in Co-location Networks Using Bayesian Non-Negative Matrix Factorization"

Posters

4. (*Cancelled due to COVID-19*) “Using Claims Data to Study Patterns of Healthcare Contacts Among Mental Health Patients With Inpatient Emergency Department (ED) Visits”
 - American Psychiatry Association (APA) Annual Meeting, Philadelphia, PA, Apr 2020.
3. “Bayesian Non-Negative Matrix Factorization for Analyzing Co-Location Networks”
 - OSU Statistics Program Graduate Information Day (For Prospective Students), Columbus, OH, Feb 2018/2019.
 - International Conference on Mathematics of Data Science (ICMDS), Old Dominion University, Norfolk, VA, Nov 2018.
 - Received the Best Presentation Award
 - OSU Statistics/Biostatistics Graduate Student Poster Session, Columbus, OH, Sep 2017/2018.
 - Joint Statistical Meetings (JSM), Vancouver, Canada, Aug 2018.
 - OSU/CCF/CWRU Joint Biostatistics Symposium, Columbus, OH, Apr 2018.
2. “Bayesian Co-Location Networks: Construction, Privacy Concerns, and Latent Structure Identification”
 - Privacy in Graphs (PiG) Workshop, UC Santa Cruz, Santa Cruz, CA, Nov 2018.
1. “Comparing the Statistical Power of Analysis of Covariance after Multiple Imputation and the Mixed Model in Testing the Treatment Effect for Pre-Post Studies with Loss to Follow-Up”
 - OSU/CCF/CWRU Joint Biostatistics Symposium, Cleveland, OH, Apr 2015.
 - ENAR Spring Meeting, Miami, FL, Mar 2015.
 - OSU Statistics/Biostatistics Graduate Student Poster Session, Columbus, OH, Sep 2014.

TEACHING EXPERIENCE

The Ohio State University

- Summer 2015 (Grader w/ Office Hours)
 - PUBHBIO 7194 Group Studies in Biostatistics
- Spring 2015 (Grader w/ Office Hours)
 - PUBHBIO 6210 Design and Analysis of Studies in the Health Sciences I
 - PUBHBIO 7215 Design and Analysis of Clinical Trials
- Autumn 2014 (Grader w/ Office Hours)
 - PUBHBIO 6210 Design and Analysis of Studies in the Health Sciences I
 - PUBHBIO 6212 Regression Methods for the Health Sciences
 - PUBHBIO 7235 Applied Survival Analysis
 - PUBHBIO 7240 Applied Statistical Analysis with Missing Data

University of Science and Technology of China

- Autumn 2011 (Grader w/ Recitation Classes & Office Hours)
 - Calculus I (for Undergraduates in Computer Sciences)
- Spring 2011 (Grader w/ Recitation Classes & Office Hours)
 - Calculus II (for Undergraduates in Computer Sciences)

Northwest Normal University

- Autumn 2009 (Teaching Practicum)
 - High School Math in Chongqing, China

HONORS AND AWARDS

The Ohio State University

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| • Travel Fund for the PiG Workshop 2018 (\$1,200) | Nov 2018 |
| • Best Poster Presentation at ICMDS 2018 | Nov 2018 |
| • Travel Fund for ICMDS 2018 (\$500) | Nov 2018 |

- Dr. Gary G. Koch and Mrs. Carolyn J. Koch Fellowship Aug 2018 - Aug 2019
- Delta Omega Since May 2015

University of Science and Technology of China

- Early Admission to USTC Graduate School with National Entrance Examination Waived Oct 2009

Northwest Normal University

- Provincial “Three-Good” Student Honor Jun 2009
- National Encouragement Scholarship Nov 2008
- University “Three-Good” Student Honor Nov 2008
- University Learning Excellence Scholarship Nov 2008, 2009
- University Good Morality Scholarship Nov 2007, 2008

SERVICES

Mentoring

- Aishwarya Gandhe, *Lab Intern* Autumn 2020
- Isata Diallo, *WCM-CUNY Big Data to Biomedical Informatics (BD2BMI)* Autumn 2020
- Yuqi Liu, Yanru Heng, Tianchen Liu, *WCM 2020 Summer Capstone Project* Summer 2020

Reviewer

- *IEEE Access*
- *International Journal of Mental Health Systems*
- *Annals of the American Association of Geographers*
- *Journal of the American Medical Directors Association*
- *American Medical Informatics Association (AMIA) 2020 Annual Symposium*
- American University of Sharjah Internal Research Funding Program

Conferences

- *Chair*, JSM Invited Session: Digital Phenotyping Aug 2020
- *Chair*, ENAR Contributed Papers: Statistical Methods for Genomics Mar 2015

The Ohio State University

- *Member*, College of Public Health Excellence in Teaching Award Committee Spring 2018, 2019
- *Panelist*, Graduate School Survival Skills Autumn 2018

CERTIFICATES

- Suicide Prevention Program REACH® Training (OSU) Autumn 2018
- Diversity and Implicit Bias Training (OSU) Spring 2018
- Teaching Certificate (High School Math in China) Spring 2010
- Intel Future Oriented Teaching Diploma (China) Autumn 2007

PROFESSIONAL SKILLS

Software	R (tidyverse, NIMBLE, GIS, Shiny, doParallel), SAS, Stata, JMP, Minitab, L ^A T _E X, SQL
System	UNIX/Linux, macOS, Windows

PROFESSIONAL MEMBERSHIP

- Institute of Mathematical Statistics (IMS) Since 2019
- American Statistical Association (ASA) Since 2018
- Delta Omega Since 2015

REFERENCES

Catherine A. (Kate) Calder, Ph.D.

Advisor

Professor, Department of Statistics and Data Sciences, The University of Texas at Austin

Phone: (512)475-8802

E-mail: calder@austin.utexas.edu

Bo Lu, Ph.D.

Committee Member/Supervisor

Professor, Division of Biostatistics, College of Public Health, The Ohio State University

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Christopher R. Browning, Ph.D.

Committee Member/Collaborator

Professor, Department of Sociology, The Ohio State University

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Haikady N. (Raj) Nagaraja, Ph.D.

Supervisor

Professor Emeritus, Division of Biostatistics, College of Public Health, The Ohio State University

Core Director, Center of Excellence in Regulatory Tobacco Science, The Ohio State University

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