Emma Jingfei Zhang

Department of Management Science

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EDUCATION

2009-2014   **Ph.D.**, Statistics, University of Illinois at Urbana-Champaign

             Dissertation title: "Statistical inference on network data"

             Advisor: Yuguo Chen

2005-2009   **B.S.**, Mathematics, Nankai University

POSITIONS

2020-present   **Associate Professor**, Department of Management Science, Miami Herbert Business School, University of Miami.

2014-2020   **Assistant Professor**, Department of Management Science, Miami Herbert Business School, University of Miami.

RESEARCH INTERESTS

Statistical machine learning, network data analysis, matrix/tensor data analysis and point process models with applications in business, social sciences, neuroimaging and genetics.

HONORS AND AWARDS

Emerging Scholar Award, Miami Herbert Business School (2020)

University of Miami Provost Research Award (2016)

University of Miami Provost Research Award (2015)

IMS New Researchers Travel Award (2013)

Norton Prize for Outstanding Thesis in Statistics, University of Illinois (2013)

Student Paper Competition Winner, ASA Sections on Statistical Computing and Statistical Graphics (2012)

PUBLICATIONS (underlined are student co-authors)

Wang, J.*, **Zhang, J.***, Liu, B., Guo, J. and Zhu, J., Fast Network Community Detection with Profile-Pseudo Likelihood Methods, *Journal of the American Statistical Association*, to appear.

                                                  *joint first authorship

Zhou, J., Sun, W.W., **Zhang, J.** and Li, L., Partially Observed Dynamic Tensor Response Regression, *Journal of the American Statistical Association*, to appear.

Hu, J.*, **Zhang, J.***, Qin, H., Yan, T., and Zhu, J., Using Maximum Entry-Wise Deviation to Test the Goodness-of-Fit for Stochastic Block Models, *Journal of the American Statistical Association*, to appear. *joint first authorship

Hao, B., Wang, B., Wang, P., **Zhang, J.,** Yang, J. and Sun, W.W. (2021), Sparse Tensor Additive Regression, *Journal of Machine Learning Research*, 22(64), 1-43.

Zhang, J., Sun, W. and Li, L. (2020), Mixed-Effect Time-Varying Network Model and Application in Brain Connectivity Analysis, *Journal of the American Statistical Association*, 532, 2022-2036.

Xu, G., Wang, M., Bian, J., Burch, B., Andrade, S., Huang, H., **Zhang, J.** and Guan, Y. (2020), Semi-Parametric Learning of Structured Temporal Point Processes, *Journal of Machine Learning Research*, 21(192), 1–39.

Xu, G., Zhao, C., Jalilian, A., Waagepetersen, R., **Zhang, J.** and Guan, Y. (2020), Nonparametric Estimation of the Pair Correlation Function of Replicated Inhomogeneous Point Processes, *Electronic Journal of Statistics*, 14, 3730-3765.

Zhang, J. and Chen, Y. (2020), Modularity Based Community Detection in Heterogeneous Networks**,** *Statistica Sinica*, 30, 601-629**.**

Zhang, J. and Cao, J. (2017), Finding Common Modules in a Time-Varying Network with Application to the Drosophila Melanogaster Gene Regulation Network, *Journal of the American Statistical Association,* 112, 994-1008.

Deng, C., Guan, Y., Waagepetersen, R. and **Zhang, J.** (2017), Second-order Quasi-likelihood for Spatial Point Processes, *Biometrics*, 73, 1311-1320.

Zhang, J. and Chen, Y. (2017), A Hypothesis Testing Framework for Modularity Based Network Community Detection, *Statistica Sinica*, 27, 437-456.

Zhang, J. and Chen, Y. (2015), Monte Carlo Algorithms for Identifying Densely Connected Subgraphs, *Journal of Computational and Graphical Statistics*, 24, 827-845.

Zhang, J. and Chen, Y. (2015), Exponential Random Graph Models for Networks Resilient to Targeted Attacks, *Statistics and Its Interface,* 8, 267-276.

Zhang, J. and Chen, Y. (2013), Sampling for Conditional Inference on Network Data, Jo*urnal of the American Statistical Association*, 108, 1295-1307.
[Student paper competition winner 2012, ASA Sections on Statistical Computing and Statistical Graphics]

He, X., Yang, Y. and **Zhang, J.** (2012), Bivariate Downscaling with Asynchronous Measurements, *Journal of Agricultural, Biological, and Environmental Statistics*, 17, 476-489.

Chon, H., Kraft, S., **Zhang, J.**, Loucks, T. and Ambrose, N. (2013), Individual Variability in Delayed Auditory Feedback Effects on Speech Fluency and Rate in Normally Fluent Adults, *Journal of Speech Language and Hearing Research*, 56, 489-504.

UNDER REVISION (underlined are student co-authors)

Zhang, J. and Li, Y., Gaussian Graphical Regression Models with High Dimensional Responses and Covariates, *Journal of the American Statistical Association*, revised and resubmitted.

Zhang, J., <u>Cai, B.</u>, Zhu, X., Wang, H., Xu, G. and Guan, Y., Learning Human Activity Patterns using Clustered Point Processes with Active and Inactive States, *Journal of Business and Economic Statistics*, revised and resubmitted.

<u>Cai, B.</u>, **Zhang, J.** and Guan, Y., Latent Network Structure Learning from High Dimensional Multivariate Point Processes, *Journal of the American Statistical Association*, under revision.

Hu, J.*, **Zhang, J.*** and Zhu, J., Guo, J., Limiting Laws and Consistent Estimation Criteria for Fixed and Diverging Number of Spiked Eigenvalues, *Annals of Statistics*, under revision.
*joint first authorship

Xu, G., **Zhang, J.**, Li, Y. and Guan, Y., Nonparametric Bias-correction and Test for Mark-point Dependence with Replicated Marked Point Processes, *Journal of the American Statistical Association*, under revision.

SUBMITTED/UNDER PREPARATION (underlined are student co-authors)

<u>Cai, B.</u>, **Zhang, J.** and Sun, W.W., Jointly Modeling and Clustering Tensors in High Dimensions, *Operations Research*, under review.

Zhang, J., Sun, W.W. and Li, L., Network Response Regression for Modeling Population of Networks with Covariates, *Journal of Computational and Graphical Statistics*, under review.

Su, C., **Zhang, J.** and Zhao, H., Estimating Cell-type-specific Gene Co-expressions from Bulk RNA-seq Data, technical report available.

<u>Zhou, J.</u>, Hao, B., Wen, Z., **Zhang, J.** and Sun, W.W., Low-rank Tensor Bandits, technical report available.

<u>Zhou, J.</u>, Han, Q., **Zhang, J.** and Sun, W.W., Missing Not at Random in Tensor Completion, under preparation.

Zhang, J. and Li, Y., Multi-task Learning in High-dimensional Gaussian Graphical Regressions, under preparation.

RESEARCH GRANTS

Funded

Title: Statistical Modeling and Inference for Network Data in Modern Applications (NSF DMS-2015190; 2020-2023)

Single PI, Division of Mathematical Sciences, National Science Foundation

Amount: $192,500

Title: Predicting Protein Network within Animals (CRI-FICMS PG011850; 2018-2019)

Co-PI, Collaborative Research Initiative for the Frost Institute for Chemistry and Molecular Science, University of Miami

Amount: $15,000

Title: Detect Fake Online Reviews Using Semantic Network Analysis (2016-2017)

Co-PI, Provost Research Award, University of Miami

Amount: $17,000

Title: Community Detection in Large Scale Product Co-Purchase Network (2015-2016)

Single PI, Provost Research Award, University of Miami

Amount: $17,000

Pending Review

Title: Statistical Methods for Characterizing Cell Type Specific Regulation from Bulk Sample Data

Co-PI, R01 Research Project Grant, National Institutes of Health

Amount: $816,495

Title: Mitigating the Problem of Bias and Fairness in Artificial Intelligence's Applications in Ophthalmic Diagnostics

Co-PI, R01 Research Project Grant, National Institutes of Health

Amount: $337,500

PRESENTATIONS

Invited Seminars

    George Washington University, Statistics Seminar, 2021.

    Florida State University, Statistics Seminar, 2021.

    University of Pennsylvania, Perelman School of Medicine, Biostatistics Seminar, 2021.

    University of Waterloo, Statistics and Actuarial Science Seminar, 2020.

    Boston University, Statistics Seminar, 2019

    Yale University, Biostatistics Seminar, 2019

    Southern University of Science and Technology, Shenzhen, China, Statistics Seminar, 2019

    Chinese University of Hong Kong, Hong Kong, Statistics Seminar, 2018

    Northeast Normal University, Jilin, China, Statistics Seminar, 2018

    Nankai University, Tianjin, China, Statistics Seminar, 2017

    Simon Fraser University, Vancouver, Canada, Statistics Seminar, 2016

    University of Miami, Finance Brownbag Seminar, 2016

    University of Alberta, Edmonton, Canada, Statistics Seminar, 2015

    Beijing University, Beijing, China, Statistics and Econometrics Seminar, 2015

    Fudan University, Shanghai, China, Statistics Seminar, 2015

    University of Miami, Biostatistics Seminar, 2014

    Syracuse University, Mathematics and Statistics Seminar, 2013

Invited Talks at Scientific Meetings

      Joint Statistical Meetings, virtual, 2021.

      EcoStatistics, virtual, 2021

      CMStatistics, virtual, 2020.

      Joint Statistical Meetings, virtual, 2020.

      11th ICSA International Conference, Hangzhou, China, 2019.

      Joint Statistical Meetings, Denver, CO, 2019.

      ICSA China Conference, Tianjin, China, 2019.

      International Workshop on Network Data Analysis, Jilin, China, 2018.

      Joint Statistical Meetings, Vancouver, Canada, 2018.

      IMS Asia Pacific Rim Meeting, Singapore, 2018.

      International Conference on Econometrics and Statistics, Hong Kong, 2018.

      Joint Statistical Meetings, Baltimore, MD, 2017.

      ICSA International Conference on Data Science, Jilin, China, 2017.

      CMStatistics, London, UK, 2017.

      Joint Statistical Meetings, Chicago, IL, 2016.

      ICSA Applied Statistics Symposium, Atlanta, GA, 2016.

      IMS New Researchers Conference, Boston, MA, 2014.

EDITORIAL SERVICE

Associate Editor, Statistica Sinica, 2020-present

PROFESSIONAL ACTIVITIES AND SERVICES

Grant Review Panel

      National Science Foundation DMS, 2021

      National Science Foundation ATD, 2020

Committee

      Scientific program committee, 12th ICSA International Conference 2022, Hong Kong

      Scientific program committee, EcoSta 2022, Kyoto, Japan

      Award Committee, JSM 2019 Statistical Learning and Data Science Poster Award.

      Program committee co-chair, 2018 International Workshop on Network Data, Jilin, China.

Conference Organization

      Invited sessions at the 12th ICSA International Conference, Hong Kong, 2022.

      Invited session at the ICSA China Conference, Xi'an, China, 2021.

      Invited session at the Joint Statistical Meetings, Philadelphia, PA, 2020.

      Invited session at the International Conference on Frontiers of Data Science, Hangzhou, China, 2019.

      Topic contributed session at the Joint Statistical Meetings, Vancouver, Canada, 2018.

      Invited session at the ICSA Applied Statistics Symposium, Atlanta, GA, 2016.

Ad Hoc Journal Reviewing

Journal of the American Statistical Association, Annals of Statistics, Journal of Machine Learning Research, Journal of Economics, Biometrics, Statistica Sinica, Technometrics, Journal of Computational and Graphical Statistics, Electronic Journal of Statistics, Journal of Multivariate Analysis, Canadian Journal of Statistics, Network Science, Social Networks, Journal of Statistical Planning and Inference, Stat, Human Brain Mapping

University Services

Disciplinary Hearing Faculty Panelist, University of Miami, 2021-present.

Executive Education Faculty Advisory Committee, University of Miami, 2017-present.

School of Business Administration Women's Network, University of Miami, 2015-present.

Faculty Hiring, Department of Management Science, University of Miami, Fall 2015-Spring 2020.

PhD Recruitment, Department of Management Science, University of Miami, Fall 2015-Spring 2020.

Seminar Organizer, Department of Management Science, University of Miami, Fall 2015-Spring 2020.

Faculty Interview, Scholarship Weekend, University of Miami, 2014-2016.

ADVISING

Ph.D. Dissertation Committee Chair

Biao Cai (Management Science), 2021

Current position: postdoctoral associate at Yale University

Jie Zhou (Management Science), 2021

Current position: research scientist at Amazon

Ph.D. Dissertation Committee Member

Xiao Xiao (Biostatistics), 2021

Chong Zhao (Management Science), 2018

Ming Wang (Management Science), 2018