CONTACT
INFORMATION
                                    (305) 284-1974
gangxu@bus.miami.edu

RESEARCH
INTERESTS
Non-/Semi-parametric regression, Functional data analysis, Spatial statistics, Spatial point process, Post-model-selection inference, Model selection and model averaging, Times series on the network.

EMPLOYMENT

University of Miami, Coral Gables, FL

Assistant professor, Department of Management Science   Aug 2018–present

Binghamton University, State University of New York, Binghamton, NY

Assistant professor, Department of Mathematical Sciences   Sep 2014–Aug 2018

Texas A&M University, College Station, TX

Postdoctoral Research Fellow, Institute for Applied Mathematics and Computational Science (IAMCS)   Jan 2012–Aug 2014

EDUCATION

Texas A&M University, College Station, TX

Ph.D., Statistics   Dec 2011
- Thesis Topic: *Variable selection and function estimation using penalized methods.*
- Advisors: Suojin Wang, Ph.D and Jianhua Z. Huang, Ph.D

Zhejiang University, Hangzhou, Zhejiang, P.R. China

B.S., Statistics   Jul 2006

STATISTICS AND
MACHINE
LEARNING
PUBLICATIONS

1. Chu, T., Guan, Y., Waagepetersen, R., and **Xu, G.** (2022) "Quasi-Likelihood for Multivariate Spatial Point Processes with Semiparametric Intensity Functions." *Spatial Statistics*, accepted.

2. **Xu, G.**, Liang, C.[#], Waagepetersen, R., and Guan, Y. (2022) "Semi-parametric Goodness-of-fit Test for Clustered Point Processes with a Shape-constrained Pair Correlation Function." *Journal of the American Statistical Association, Theory & Method,* accepted. ([#]: Ph.D. student supervised)

3. Zhang, J., Cai, B., Zhu, X., Wang, H., **Xu, G.**, and Guan, Y. (2022) "Learning Human Activity Patterns using Clustered Point Processes with Active and Inactive States." *Journal of Business and Economic Statistics*, accepted.

4. Hessellund, K. B., **Xu, G.**, Guan, Y., and Waagepetersen, R. (2022) "Second-order Semi-parametric Inference for Multivariate Log Gaussian Cox Processes." *Journal of the Royal Statistical Society, Series C*, accepted.

5. Yin, L., **Xu, G.**, Sang, H., and Guan, Y. (2021) "Row-clustering of a Point Process-valued Matrix." *Advances in Neural Information Processing Systems (NeurIPS)*, **34**.

6. Hessellund, K. B.[*], **Xu, G.**[*], Guan, Y., and Waagepetersen, R. (2021) "Semi-parametric Multinomial Logistic Regression for Multivariate Point Pattern Data." *Journal of the American Statistical Association, Theory & Method,* 1-16. ([*]: joint first authors with equal contributions.)

7. **Xu, G.**, Wang, M., Bian, J., Burch, T. R., Andrade, S. C., 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.

8. **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.

9. **Xu, G.**, Zhu, H., and Lee, J. J. (2020) "Borrowing Strength and Borrowing Index for Bayesian Hierarchical Models." *Computational Statistics & Data Analysis*, **144**, 106901.

10. **Xu, G.**, Shang, Z., and Cheng, G. (2019) "Distributed Generalized Cross-Validation for Divide-and-Conquer Kernel Ridge Regression and its Asymptotic Optimality." *Journal of Computational and Graphical Statistics*, **28**, 891-908.

11. **Xu, G.**, Waagepetersen, R., and Guan, Y. (2019) "Stochastic Quasi-likelihood for Case-Control Point Pattern Data." *Journal of the American Statistical Association, Theory & Method,* **114**, 631-644.

12. **Xu, G.**, Shang, Z., and Cheng, G. (2018) "Optimal Tuning Parameter Selection for the Divide-and-conquer Kernel Ridge Regression with Massive Data." *Proceedings of the 35th International Conference on Machine Learning (ICML, Oral)* **80**, 5483-5491.

13. **Xu, G.** and Genton, M. (2017) "Tukey's *g*-and-*h* Random Fields." *Journal of the American Statistical Association, Theory & Method,* **112**, 1236-1249.

14. **Xu, G.** and Genton, M. (2016) "Tukey Max-Stable Processes for Spatial Extremes." *Spatial Statistics*, **18**, 431-443.

15. **Xu, G.** and Genton, M. (2015) "Efficient Maximum Approximated Likelihood Inference for Tukey's *g*-and-*h* Distribution." *Computational Statistics & Data Analysis,* **91**, 78-91.

16. **Xu, G.**, Liang, F., and Genton, M.G. (2015) "A Bayesian Spatio-temporal Geostatistical Model with an Auxiliary Lattice for Large Datasets." *Statistica Sinica*, **25**, 61-79.

17. **Xu, G.**, Wang, S., and Huang, J.Z. (2014) "Focused Information Criterion and Model Averaging Based on Weighted Composite Quantile Regression." *Scandinavian Journal of Statistics*, **41**, 365-381.

18. **Xu, G.** and Huang, J.Z. (2012) "Asymptotic Optimality and Efficient Computation of the Leave-subject-out Cross-validation." *Annals of Statistics.* **40**, 3003-3030.

19. **Xu, G.**, Xiang, Y.B., Wang, S., and Lin, Z.Y. (2012) "Regularization and Variable Selection for Infinite Variance Autoregressive Models." *Journal of Statistical Planning and Inference.* **142**, 2545-2553.

20. **Xu, G.** and Wang, S. (2011) "A Goodness-of-fit Test of Logistic Regression Based on Case-control Data with Measurement errors." *Biometrika.* **98**, 877-886.

21. Zhang, G., Xia, Y., and **Xu, G.** (2006), "Instantaneous Availability Assessment of Renewable Component in Exponential Distributions." *Appl. Math. J. Chinese Univ. Ser. B*, 2006, 21(4): 397-404.

INTERDISCIPLINARY COLLABORATIONS	1. Chen, X., Lin, L., et al., **Xu, G.**, Song, Y., Xue, Y., and Duan, Q. (2020) "Histogram analysis in predicting the grade and histological subtype of meningiomas based on diffusion kurtosis imaging." *Acta Radiologica*, **61(9)**, 1228-1239.

INTERDISCIPLINARY COLLABORATIONS

1. Chen, X., Lin, L., et al., **Xu, G.**, Song, Y., Xue, Y., and Duan, Q. (2020) "Histogram analysis in predicting the grade and histological subtype of meningiomas based on diffusion kurtosis imaging." *Acta Radiologica*, **61(9)**, 1228-1239.

2. Hathout, Y., Liang, C., Ogundele, M., **Xu, G.**, et al. (2019) "Disease-specific and glucocorticoid-responsive serum biomarkers for Duchenne Muscular Dystrophy." *Scientific reports*, **9**, 1-13.

3. Zhao, H., Wang, B., **Xu, G.**, Dong, Y., Dong, Q., and Cao, W. (2019) "Collateral grade of the Willis' circle predicts outcomes of acute intracranial internal carotid artery occlusion before thrombectomy." *Brain and behavior*, **9**, e01452.

4. Lin, L., Xue, Y., et al., **Xu, G.**, Geng, D., and Zhang, J. (2019) "Grading meningiomas using mono-exponential, bi-exponential and stretched exponential model-based diffusion-weighted MR imaging." *Clinical radiology*, **74**, 651.e15-651.e23.

5. Deng, C., Lin, W., Ye, X., Li, Z., Zhang, Z., and **Xu, G.** (2018) "Social Media Data as a Proxy for Hourly Fine-scale Electric Power Consumption Estimation." *Environment and Planning A: Economy and Space*, **50**, 1553-1557.

6. Lin, L., Chen, X., et al., **Xu, G.**, Duan, Q., and Xue, Y. (2018) "Differentiation between vestibular schwannomas and meningiomas with atypical appearance using diffusion kurtosis imaging and three-dimensional arterial spin labeling imaging." *European journal of radiology*, **109**, 13-18.

FUNDED RESEARCH PROJECTS

1. Collaborative Research: Non- and Semi-Parametric Modeling of Structured Human Activity Patterns Using Point Processes.
Grant: National Science Foundation (SES 1902195)
PI: **Ganggang Xu**
Period: 05/15/2018-04/30/2021
Total amount $99,029.00

2. Integrated Sustainable Power System Operation & Planning with Real-Time Population Estimates.
Grant: Interdisciplinary Collaboration Grants, Binghamton University
PIs: Chengbin Deng, **Ganggang Xu**, Ziang Zhang
Period: 06/01/2017-05/31/2018
Total amount $9,990

3. Topics in regression Models and Spatial Statistics.
Grant: Collaboration Grants for Mathematicians (Award ID: 524205), Simons Foundation
PI: **Ganggang Xu**
Period: 09/01/2017-08/31/2022
Total amount $42,000

TEACHING EXPERIENCE

University of Miami — Fall 2018 to present
MAS 311 (Applied Probability and Statistics): Fall 2018, 2019
MAS 312 (Statistical Methods and Quality Control): Spring 2021
MAS 637 (Applied Regression Analysis I): Fall 2021
MAS 640 (Applied Time Series Analysis and Forecasting): Spring 2021
MAS 681 (Statistical Machine Learning): Fall 2019
Binghamton University — Fall 2014 to Spring 2018
Math 447 (Introduction to Probability and Statistics I): Fall 2014; Spring 2015
Math 448 (Introduction to Probability and Statistics II): Spring 2015; Fall 2015

- **New courses developed**
    Math 531 (Regression I): Fall 2015; Fall 2016
    Math 532 (Regression II): Spring 2016; Spring 2017
    Math 536 (Non-parametric and Semiparametric Regression): Spring 2017
    Math 455 (Introduction to Regression Models, undergraduate level): Spring 2018

Texas A&M University   Spring 2008 to Summer 2009
Full teaching responsibility for 30-50 students per semester in two undergraduate courses (STAT 301 and STAT 302). Taught for 4 semesters in total.

STUDENT
SUPERVISING
University of Miami   Fall 2018-present
<u>Ph.D. Dissertation Committee member</u>

Lixing Chen, Ph.D. 2020 (Advisor: Jie Xu), Department of Electrical and Computer Engineering.

Binghamton University   Fall 2014-Spring 2018
<u>Ph.D. Dissertation Committee Chair</u>

Lin Yao, Ph.D. 2019 (joint with Xingye Qiao), Department of Mathematical Sciences.
Dissertation: James-Stein-Type Optimal Weight Choice for Frequentist Model Average Estimator
Placement: Upstart.com Inc.

Chen Liang, Ph.D. 2019 (joint with Xingye Qiao), Department of Mathematical Sciences.
Dissertation: Goodness-of-fit Tests for Spatial Cluster Point Process Models
Placement: Amazon.com Inc.

PROFESSIONAL
ACTIVITIES AND
SERVICE
Professional Committee
1. Award Committee, JSM 2022 Student Paper Award, American Statistical Association Nonparametric Statistics Section.
2. Award Committee, JSM 2022 Student Paper Award, American Statistical Association Statistical Learning and Data Science Section.

Conference Organization
Invited session at the ICSA Applied Statistics Symposium, New Brunswick, NJ, 2018.
Invited session at the ICSA Applied Statistics Symposium, Atlanta, GA, 2016.

Journal Reviewer
Journal of the American Statistical Association, Annals of Statistics, Journal of Multivariate Analysis, Statistica Sinica, American Statistician, Journal of Statistical Planning and Inference, Journal of Nonparametric Statistics, Journal of Applied Statistics Techonometrics, BMC-Bioinformatics, Statistical Papers, Information Sciences, Bayesian Analysis, etc.

University Service

University of Miami   Fall 2018-present
1. Information Technology Advisory Committee Member, Miami Herbert Business School.   2018-present

Binghamton University   Fall 2014-Spring 2018
1. Actuarial Science Committee Member, Department of Mathematical Sciences.
2. Master's Exam Coordinator, Department of Mathematical Sciences.   2015-2016
3. Organizer of the Statistical Machine Learning Seminar.   2016-2017
4. Faculty Search Committee member, Department of Health Outcomes, School of Pharmacy and Pharmaceutical Sciences.   2016

AWARDS	• Distinguished Student Paper Award, ENAR Spring Meeting, 2012, Washington D.C.
	• Emanuel Parzen Graduate Research Fellowship Award, 2011, Department of Statistics, Texas A&M University.
	• Eli Lilly Fellowship, 2006, Department of Statistics, Texas A&M University.
	• Outstanding Undergraduate Thesis, 2006, Department of Mathematics, Zhejiang University.

PRESENTATIONS **Invited Seminars**

- Semi-parametric Multinomial Logistic Regression for Multivariate Point Pattern Data. *Invited talk, 10/2021, Department of Mathematics and Statistics, University of New Mexico, Albuquerque, NM.*

- Semi-parametric Learning of Structured Temporal Point Processes. *Invited talk, 05/2019, Department of Mathematical Sciences, Binghamton University, Binghamton, NY.*

- Stochastic Quasi-likelihood for Case-Control Point Pattern Data. *Invited talk, 06/2018, School of Data Science, Fudan University, Shanhai, China.*

- Stochastic Quasi-likelihood for Case-Control Point Pattern Data. *Invited talk, 06/2018, Department of Mathematics, Zhejiang University, Hangzhou, China.*

- Stochastic Quasi-likelihood for Case-Control Point Pattern Data. *Invited talk, 01/2018, Department of Management Science, University of Miami, Coral Gables, FL.*

- Stochastic Quasi-likelihood for Case-Control Point Pattern Data. *Invited talk, 12/2017 Department of Biostatistics, UT MD Anderson Cancer Center, Houston, TX.*

- Tukey g-and-h Random Fields. *Invited talk, 12/2017 Department of Applied Economics and Statistics, University of Delaware, Newark, DE.*

- Focused Information Criterion and Model Averaging Based on Weighted Composite Quantile Regression. *Invited talk, 07/2015 Department of Biostatistics, UT MD Anderson Cancer Center, Houston, TX.*

- Asymptotic Optimality and Efficient Computation of the Leave-subject-out Cross-validation. *11/2014 Invited talk, Department of Mathematics, Syracuse University, Syracuse, NY.*

- Asymptotic Optimality and Efficient Computation of the Leave-subject-out Cross-validation. *Invited talk, 03/2014, Department of Mathematical Sciences, Binghamton University, Binghamton, NY.*

- Asymptotic Optimality and Efficient Computation of the Leave-subject-out Cross-validation. *Invited talk, 03/2014, Department of Statistics, University of Nebraska, Lincoln, NE.*

- A Bayesian Spatio-temporal Geostatistical Model with an Auxiliary Lattice for Large Data Sets. *02/2014 Invited talk, Department of Mathematics, University of Alabama, Tuscaloosa, AL.*

- Asymptotic Optimality and Efficient Computation of the Leave-subject-out Cross-validation. *Invited talk, 02/2014, Department of Statistics, Oregon State University, Corvallis, OR.*

- Asymptotic Optimality and Efficient Computation of the Leave-subject-out Cross-validation. *Invited talk, 02/2014, Department of Statistics, University of Kentucky, Lexington, KY.*

- Asymptotic Optimality and Efficient Computation of the Leave-subject-out Cross-

validation. *Invited talk, 02/2014, Department of Mathematics and Statistics, Univer -sity of New Mexico, Albuquerque, NM.*

- Asymptotic Optimality and Efficient Computation of the Leave-subject-out Cross-validation. *02/2014 Invited talk, Department of Operations, Business Analytics & Information Systems Carl H. Lindner College of Business, University of Cincinnati, Cincinnati, Ohio.*

- Asymptotic Optimality and Efficient Computation of the Leave-subject-out Cross-validation. *01/2014 Invited talk, Department of Biostatistics, University of Pittsburgh, Pittsburgh, PA.*

- A Bayesian Spatio-temporal Geostatistical Model with an Auxiliary Lattice for Large Data Sets. *01/2014 Invited talk, Department of Mathematical Sciences, University of Cincinnati, Cincinnati, Ohio.*

- Asymptotic Optimality and Efficient Computation of the Leave-subject-out Cross-validation. *12/2013 Invited talk, Department of Management Science, University of Miami, Coral Gables, FL.*

Conference Presentations

- Second-order Semi-parametric Inference for Multivariate Log-Gaussian Cox Processes. *Invited talk, 09/2021 ICSA Annual Meeting, Online.*

- Semi-parametric Learning of Structured Temporal Point Processes. *Invited talk, 02/2021, Winter Research Conference on Machine Learning, University of Miami, Miami, FL.*

- Semi-parametric Multinomial Logistic Regression for Multivariate Point Pattern Data. *Invited talk, 12/2020 ICSA Annual Meeting, Online.*

- Semi-parametric Learning of Structured Temporal Point Processes. *Invited talk, 10/2020, Online Seminar on Spatial and spatio-temporal Point processes and beyond.*

- Semi-parametric Learning of Structured Temporal Point Processes. *Invited talk, 07/2019, IMS-China 2019 conference, Dalian, China.*

- Optimal Tuning for Divide-and-conquer Kernel Ridge Regression with Massive Data. *Invited talk, 06/2019, ICSA 2019 Applied Statistics Symposium, Raleigh, NC.*

- Stochastic Quasi-likelihood for Case-Control Point Pattern Data. *Invited talk, 05/2019, 'Point processes in space, time and beyond' workshop, Skagen, Denmark.*

- Optimal Tuning for Divide-and-conquer Kernel Ridge Regression with Massive Data. *Invited talk, 12/2018, Big Data and Information Analytics Conference, Houston, TX.*

- Optimal Tuning for Divide-and-conquer Kernel Ridge Regression with Massive Data. *Invited talk, 07/2018, International Conference on Machine Learning, Stockholm, Sweden.*

- Tukey Max-Stable Processes for Spatial Extremes. *2017 Joint Statistical Meeting, Baltimore, MD.*

- A Simple Averaged Post-model-selection Confidence Interval. *Invited talk, 06/2016, Conference on Statistical Learning and Data Science, Chapel Hill, NC.*

- Focused Information Criterion and Model Averaging Based on Weighted Composite Quantile Regression. *Invited talk, 06/2015 ICSA Annual Meeting, Fort Collins, CO.*

- A Bayesian Spatio-temporal Geostatistical Model with an Auxiliary Lattice for Large Data Sets. *2013 Joint Statistical Meeting, Montreal, Quebec, Canada.*

- Highly Efficient Robust Estimation and Inference Based on Focused Information Criterion and Model Averaging. *2012 Joint Statistical Meeting, San Diego, CA.*

- Asymptotic Optimality and Efficient Computation of the Leave-subject-out Cross-validation. *2012 ICSA Applied Statistics Symposium, Boston, MA.*

- Asymptotic Optimality and Efficient Computation of the Leave-subject-out Cross-validation. *2012 ENAR Spring Meeting, Washington D.C.* (Distinguished Student Paper Award.)

- A Goodness-of-fit Test of Logistic Regression Based on Case-control Data with Measurement Errors. *2011 Joint Statistical Meeting, Miami, FL.*

- Automatic Multiple Smoothing Parameter Selection for Nonparametric Function Estimation with Clustered and Longitudinal Data. *2010 Joint Statistical Meeting, Vancouver, BC,Canada.*