# Rui Xie

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## EDUCATION

**University of Georgia**, Department of Statistics, Athens, Georgia, USA

- Ph.D. in Statistics, Aug 2013 – Present
  - Focus: Sampling, Time Series, Big Data, Distributed and Decentralized Computing, Spatial Statistics, and Engineering Statistics.

**Georgia Institute of Technology**, H. Milton School of Industrial and Systems Engineering, Atlanta, Georgia, USA

- M.S. in Statistics, Aug 2011 – May 2013

**Xiamen University**, Xiamen, Fujian, China

- B.S. in Physics Aug 2007 – Jul 2011
- B.S. in Quantitative Finance

## PUBLICATIONS

### PEER-REVIEWED

[1] Lu, Yanfei, **Rui Xie**, and Steven Y. Liang. 2019. Bearing Fault Diagnosis with Nonlinear Adaptive Dictionary Learning. *The International Journal of Advanced Manufacturing Technology* (2019): 1-13. https://doi.org/10.1007/s00170-019-03455-1.

[2] **Rui Xie**, Zengyan Wang, Shuyang Bai, Ping Ma, and Wenxuan Zhong. Online decentralized leveraging sampling for streaming multivariate time series. Accepted. *The 22nd International Conference on Artificial Intelligence and Statistics (AISTATS 2019)*.

[3] **Rui Xie**, Mengrui Zhang, Prahatha Venkatraman, Xinlian Zhang, Gaonan Zhang, Robert Carmer, Skylar A. Kantola, Chi Pui Pang, Ping Ma, Mingzhi Zhang, Wenxuan Zhong, and Yuk Fai Leung. Normalization of large-scale behavioural data collected from zebrafish. *PLoS ONE* 14(2): e0212234. https://doi.org/10.1371/journal.pone.0212234

[4] **Rui Xie**, Fangyu Li, Zengyan Wang, and WenZhan Song. Large scale randomized learning guided by physical laws with applications in full waveform inversion. Accepted. *2018 IEEE Global Conference on Signal and Information Processing (GlobalSIP)*.

[5] Fangyu Li, **Rui Xie**, WenZhan Song, and Hui Chen. Optimal seismic reflectivity inversion: data-driven $\ell_p$-loss-$\ell_q$-regularization sparse regression. Accepted, *IEEE Geoscience and Remote Sensing Letters*, (2018). PP. 1-5. 10.1109/LGRS.2018.2881102.

[6] Zhang, Xinlian, **Rui Xie**, and Ping Ma. Statistical Leveraging Methods in Big Data. In: Härdle W., Lu HS., Shen X. (eds) *Handbook of Big Data Analytics.* Springer Handbooks of Computational Statistics, Springer, Cham, 2018. 51-74.

[7] Lu, Yanfei, **Rui Xie**, and Steven Y. Liang. Adaptive online dictionary learning for bearing fault diagnosis. *The International Journal of Advanced Manufacturing Technology*, (2018). https://doi.org/10.1007/s00170-018-2902-0.

[8] Lu, Yanfei, **Rui Xie**, and Steven Y. Liang. Detection of weak fault using sparse empirical wavelet transform for cyclic fault. *The International Journal of Advanced Manufacturing Technology*, (2018)99: 1195-1201.

[9] Li, Fangyu, **Rui Xie**, Wenzhan Song, Tao Zhao, and Kurt Marfurt. Optimal $\ell_q$ norm regularization for sparse reflectivity inversion. *2017 SEG International Exposition and Annual Meeting.* Society of Exploration Geophysicists, (2017): 677-681.

[10] Nural, Mustafa V., Michael E. Cotterell, Hao Peng, **Rui Xie**, Ping Ma, and John A. Miller. Automated predictive big data analytics using ontology based semantics. *International Journal of Big Data*, 2.2 (2015): 43-56.

### UNDER REVIEW OR IN PREPARATION

[11] **Rui Xie**, T. N. Sriram, Wei Biao Wu, and Ping Ma. Online sequential leveraging sampling method for streaming data. Under review, *Journal of the Royal Statistical Society: Series B (Statistical Methodology)*.

[12] Fangyu Li, **Rui Xie**, Ying Hu, WenZhan Song. Resampling-based seismic signal enhancement via randomized local reconstruction. Under revision, *IEEE Geoscience and Remote Sensing Letters*.

[13] Xin Xing, Di Xiao, **Rui Xie**, and Wenxuan Zhong. Model-based dictionary learning: sparse coding beyond Gaussian independent model. Under review, *The 22nd International Conference on Artificial Intelligence and Statistics*.

[14] Lu, Yanfei, **Rui Xie**, and Steven Y. Liang. Extraction of weak fault using combined dual-tree wavelet and improved MCA for rolling bearings. Under revision, *The Journal of Nondestructive Evaluation, Diagnostics and Prognostics of Engineering Systems*.

[15] Lu, Yanfei, **Rui Xie**, and Steven Y. Liang. Intelligent online learning diagnostic model for bearing fault detection. Under review, *Mechanical Systems and Signal Processing*.

[16] **Rui Xie**, Fangyu Li, Zengyan Wang, and WenZhan Song. Sub-sampled Newton method for full-waveform inversion. In preparation.

[17] Cheng Meng, **Rui Xie**, Xinlian Zhang, Abhyuday Mandal, Wenxuan Zhong, and Ping Ma. Design based subsampling in big data with application to robust linear regression. In preparation.

[18] **Rui Xie**, Wenxuan Zhong, and Ping Ma. Leverage Sampling for Spatial Data. In preparation.

## AWARDS & HONORS

- **ASA Computing/Graphics Student Paper Award**, American Statistical Association. Jan 2019
- **ICSA Student Paper Award**, International Chinese Statistical Association. Jun 2018
- **Travel Grant**, The 2018 Applied Statistics Symposium. Jun 2018
  International Chinese Statistical Association (ICSA), New Brunswick, NJ, USA
- **Mu Sigma Rho**: The National Statistics Honorary Society. May 2018
- **Travel Grant**, May Institute: Computation and statistics for mass spectrometry and proteomics. Apr 2018
  Northeastern University, Boston, MA, USA
- **Georgia Statistics Day Student Poster Award**. Oct 2017
  Emory University, Atlanta, GA, USA
- **Outstanding Teaching Award**, University of Georgia. May 2017

## PRESENTATION

Invited Presentation, ICSA 2018 Applied Statistics Symposium. Jun 2018
*Online sequential leveraging sampling method for streaming time series data.*
New Brunswick, NJ, USA

Poster, The University of Georgia/Clemson University Joint Seminar. Mar 2018
*Sequential leveraging sampling method for streaming time series data.*
University of Georgia, Athens, GA, USA

Poster, Georgia Statistics Day. Oct 2017
*Sequential leveraging sampling method for streaming data.*
Emory University, Atlanta, GA, USA

Invited Presentation, the Center for Cyber-Physical Systems (CCPS), UGA. Mar 2017
*Large scale randomized learning with applications in full waveform inversion.*
Athens, GA, USA

## TEACHING ACTIVITIES

### GUEST LECTURE

Graduate Courses

- CSEE 8300, Principles of Cyber-Physical Systems Fall 2017
- STAT 6280, Multivariate Time Series Analysis Spring 2015

Undergraduate Courses

- FYOS 1001, First-Year Odyssey Seminars Fall 2017
- STAT 4280, Applied Time Series Analysis Spring 2016

### TEACHING ASSISTANT

Graduate Courses

- STAT 6430, Design and Analysis of Experiments Spring 2018
- STAT 6315, Statistical Methods for Researchers Fall 2016 & Fall 2013
- STAT 8910, Statistical Seminar Fall 2016
- STAT 6420, Applied Linear Models Fall 2015
- STAT 6280, Multivariate Time Series Analysis Spring 2015

- STAT 6510, Mathematical Statistics — Fall 2014
- STAT 6360, Statistical Software Programming — Summer 2014

Undergraduate Courses

- STAT 2000, Introductory Statistics — Fall 2018 & Spring 2014
- STAT 4220, Applied Experimental Designs — Fall 2017 & Spring 2016
- STAT 4110H, Honors Applied Statistics — Spring 2016

**PROFESSIONAL ACTIVITIES & AFFILIATIONS**

**REVIEW FOR JOURNAL**

Statistica Sinica
Statistical Applications in Genetics and Molecular Biology
Sankhya B

**REVIEW FOR BOOK CHAPTER**

"Handbook of Research on Applied Cybernetics and Systems Science," *IGI Global*, 2017

**ORGANIZATION MEMBERSHIP**

American Statistical Association (ASA) — 2017 – Present
International Chinese Statistical Association (ICSA) — 2017 – Present
Institute of Electrical and Electronics Engineers (IEEE) — 2018 – Present
IEEE Signal Processing Society — 2018 – Present

**OUTREACH ACTIVITIES**

- Volunteer, Georgia Statistics Day 2018 — Oct 2018
  University of Georgia, Athens, GA, USA
- Invited Speaker, Lambert High School — Feb 2018
  Suwanee, GA, USA
- Invited Speaker, The Gwinnett School of Mathematics, Science, and Technology, — Nov 2017
  Lawrenceville, GA, USA
- Volunteer, Georgia Statistics Day 2015 — Oct 2015
  University of Georgia, Athens, GA, USA

**SKILLS**

R, MATLAB, Python, C, LaTeX, Julia, Linux bash, Mathematica, Stata, EViews.
Distributed computing & Parallel computing.