

# Will Wei Sun

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<b>Education</b>	<b>Purdue University</b> , West Lafayette, IN, USA Ph.D. in Statistics, <i>Aug. 2011 - May 2015</i> M.S. in Statistics and Computer Science, <i>Aug. 2012 - May 2014</i> <b>Princeton University</b> , Princeton, NJ, USA Visiting Student of Department of ORFE, <i>Sep. 2014 - May 2015</i> <b>University of Illinois at Chicago</b> , Chicago, IL, USA M.S. in Statistics, <i>Aug. 2009 - May 2011</i> <b>Nankai University</b> , Tianjin, China B.S. in Statistics, <i>Sep. 2005 - Jul. 2009</i>
<b>Appointments</b>	Assistant Professor of Quantitative Methods, Purdue University, <i>Jun. 2019-</i> Assistant Professor, Miami Business School, <i>Aug. 2016 - May 2019</i> Research Scientist, Advertising Science Team, Yahoo Labs, <i>Jun. 2015 - Aug. 2016</i>
<b>Industrial Experience</b>	<b>Yahoo Labs</b> , Sunnyvale, CA <i>Research Scientist</i> <i>Jun. 2015 - Aug. 2016</i> <ul style="list-style-type: none"><li>• Worked on personalized advertising based on web-scale data via Hadoop and Pig.</li><li>• Developed time series forecasting for Yahoo’s traffic via ensemble machine learning.</li><li>• Proposed a new budget pacing algorithm in real time bidding system to improve advertisers’ return on investment (ROI).</li></ul> <b>Yahoo Labs</b> , Sunnyvale, CA <i>Research Scientist Intern</i> <i>Jun. 2014 - Aug. 2014</i> <ul style="list-style-type: none"><li>• Proposed an efficient and robust tree-based causal inference framework for assessing the impact of complex advertising treatments from millions of users.</li><li>• Developed a sparse additive model equipped with Gaussian copula to model multivariate non-gaussian advertising treatments.</li></ul>
<b>Research Interests</b>	<b>Machine learning</b> : reinforcement learning; tensor learning; non-convex optimization <b>Data Science</b> : computational advertising; recommender systems; neuroscience
<b>Journal Publications</b>	<b>10.</b> Xiang Lv, <b>Will Wei Sun</b> , Zhaoran Wang, Han Liu, Jian Yang, and Guang Cheng (2019), “Tensor Graphical Model: Non-convex Optimization and Statistical Inference”, <i>IEEE Transactions on Pattern Analysis and Machine Intelligence</i> , Accepted. <b>9.</b> <b>Will Wei Sun</b> and Lexin Li (2018), “Dynamic Tensor Clustering”, <i>Journal of the American Statistical Association</i> , Accepted. <b>8.</b> Botao Hao, <b>Will Wei Sun</b> , Yufeng Liu, and Guang Cheng (2018), “Simultaneous Clustering and Estimation of Heterogeneous Graphical Models”, <i>Journal of Machine Learning Research</i> , Accepted. <b>7.</b> <b>Will Wei Sun</b> and Lexin Li (2017), “STORE: Sparse Tensor Response Regression and Neuroimaging Analysis”, <i>Journal of Machine Learning Research</i> , Accepted. <b>6.</b> <b>Will Wei Sun</b> , Guang Cheng, and Yufeng Liu (2017), “Stability-Enhanced Large-Margin Classifier Selection”, <i>Statistica Sinica</i> , Accepted.

5. Binhuan Wang, Yilong Zhang, **Will Wei Sun**, and Yixin Fang (2017), “Sparse Convex Clustering”, *Journal of Computational and Graphical Statistics*, Accepted.
4. **Will Wei Sun**, Junwei Lu, Han Liu, and Guang Cheng (2017), “Provable Sparse Tensor Decomposition”, *Journal of the Royal Statistical Society: Series B*, 79, 899-916.
3. **Will Wei Sun**, Xinye Qiao, and Guang Cheng (2016), “Stabilized Nearest Neighbor Classifier and Its Statistical Properties”, *Journal of the American Statistical Association*, 111, 1254-1265.
2. **Wei Sun**, Junhui Wang, and Yixin Fang (2013), “Consistent Selection of Tuning Parameters via Variable Selection Stability”, *Journal of Machine Learning Research*, 13, 3419-3440.
1. **Wei Sun**, Junhui Wang, and Yixin Fang (2012), “Regularized K-means Clustering of High-dimensional Data and Its Asymptotic Consistency”, *Electronic Journal of Statistics*, 6, 148-167.

**Refereed  
Conference  
Publications**

4. **Will Wei Sun**, Junwei Lu, and Han Liu (2018), “Sketching Method for Large Scale Combinatorial Inference”, *Advances in Neural Information Processing Systems (NIPS 2018)*. [**Full paper**, 21% acceptance]
3. **Wei Sun**, Zhaoran Wang, Han Liu, and Guang Cheng (2015), “Non-convex Statistical Optimization for Sparse Tensor Graphical Model”, *Advances in Neural Information Processing Systems (NIPS 2015)*. [**Full paper**, 22% acceptance]
2. **Wei Sun**, Pengyuan Wang, Dawei Yin, Jian Yang, and Yi Chang (2015), “Causal Inference via Sparse Additive Models with Application to Online Advertising”, *National Conference of the American Association for Artificial Intelligence (AAAI 2015)*. [**Full paper**, 26% acceptance]
1. Pengyuan Wang, **Wei Sun**, Dawei Yin, Jian Yang, and Yi Chang (2015), “Robust Tree-based Causal Inference for Complex Ad Effectiveness Analysis”, *ACM International Conference on Web Search and Data Mining (WSDM 2015)*. [**Full paper**, 16% acceptance]

**Submitted  
Manuscripts**

4. Emma Zhang, **Will Wei Sun**, and Lexin Li (2019), “Network Response Regression for Modeling Population of Networks with Covariates”, *Journal of the American Statistical Association*, Submitted.
3. Emma Zhang, **Will Wei Sun**, and Lexin Li (2019), “Mixed-Effect Time-Varying Stochastic Block Model and Application in Brain Connectivity Analysis”, *Journal of the American Statistical Association*, Submitted.
2. Eric Chi, Brain Gaines, **Will Wei Sun**, Hua Zhou, and Jian Yang (2019), “Convex Co-clustering of Tensors”, *Journal of Machine Learning Research*, Submitted.
1. Pengyuan Wang, Guiyang Xiong, **Will Wei Sun**, and Jian Yang (2018), “Effect of Complex Multimedia Advertising Campaigns: A Causal Inference Model for Big Data”, *Marketing Science*, Submitted.

**Teaching**

- MAS 681, Statistical Machine Learning, Miami Business School, *Spring, Fall 2018*
- Topics include deep learning, supervised learning, unsupervised learning
- MAS 648, Data Mining, Miami Business School, *Fall 2018*
- Core course of Master of Science in Business Analytics
  - Focus on business applications of data mining algorithms.

MAS 311, Probability and Statistics, Miami Business School, *Spring 2017, 2018*  
• Core course of B.S.B.A. in Business Analytics

**Patents** “Systems and Methods for Measuring Complex Online Strategy Effectiveness”, United States Patent Application 20160189202, Yahoo! Inc., December, 2014.

**Software**

1. **pass**, R package for prediction and stability selection of tuning parameters
2. **snn**, R package for stabilized nearest neighbor classifier
3. **Tlasso**, R package for sparse tensor graphical models
4. **scvxclustr**, R package for sparse convex clustering

**Honors**

University of Miami Provost Research Award *2017, 2018*  
Institute of Mathematical Statistics Laha Travel Award *2013, 2015*  
I.W. Burr Award, Purdue University *2015*  
Lynn Fellowship, Purdue University *2011 - 2015*

**Presentations**

**Invited Conference Talks**

- The 11th ICSA International Conference, Zhejiang, China, *Dec., 2019*
- Joint Statistical Meetings (JSM), Denver, Colorado, *Jul., 2019*
- POMS Annual Conference, DC, *May, 2019*
- INFORMS Annual Meeting, AZ, *Nov., 2018*
- Conference on Statistical Learning and Data Science, NY, *Jun., 2018*
- Applied Statistics Symposium, ICSA, NJ, *Jun., 2018*
- International Conference on Econometrics and Statistics, Hongkong, *Jun., 2018*
- IISA International Conference on Statistics, FL, *May, 2018*
- CMStatistics, London, UK, *Dec., 2017*
- Joint Statistical Meetings, Baltimore, MD, *Aug., 2017*
- Applied Statistics Symposium, ICSA, Chicago, IL, *Jun., 2017*
- International Conference on Econometrics and Statistics, Hongkong, *Jun., 2017*
- Conference on Statistical Learning and Data Science, NC, *Jun., 2016*
- Applied Statistics Symposium, ICSA, Atlanta, GA, *Jun., 2016*

**Invited Seminar Talks**

- Krannert School of Management, Purdue University, *Jan., 2019*
- Dept. of Statistics, Purdue University, *Jan., 2019*
- Dept. of MSCS, University of Illinois at Chicago, *Sep., 2018*
- Dept. of Mathematical Sciences, New Jersey Institute of Technology, *Sep., 2017*
- Dept. of Statistics, University of Wisconsin-Madison, *Sep., 2017*
- Guanghua School of Management, Peking University, China, *Jun., 2017*
- The Institute of Statistics, Nankai University, China, *Jun., 2017*
- School of Finance and Statistics, East University Normal University, *Jun., 2017*
- Dept. of Biostatistics, University of Miami, *Apr., 2017*
- Dept. of Statistics, Florida State University, *Apr., 2016*
- Dept. of Statistics, North Carolina State University, *Feb., 2016*
- Krannert School of Management, Purdue University, *Jan., 2016*
- Dept. of Management Science, University of Miami, *Dec., 2015*
- Dept. of Math & Stat., University of Massachusetts Amherst, *Dec., 2015*
- Division of Biostatistics, New York University, *Mar. 2015*
- Machine Learning Seminar, Binghamton University, *Sep., 2014*
- Yahoo Labs, Sunnyvale, CA, *Aug., 2014*

**Professional Service** **Associate Editor:** *Statistical Analysis and Data Mining*, *Mar. 2018-*

**PhD Students:**

- Jie Zhou, PhD candidate of Management Science, University of Miami, *2016-*
- Boxiang Wang (UMN), Summer intern at Yahoo Labs, *2016*
- Forough Arabshahi (UCI), Summer intern at Yahoo Labs, *2016*

**Conference Invited Session Organizer:**

- Joint Statistical Meetings (JSM), Denver, Co, *Jul., 2019*
- ASA's Symposium on Data Science and Statistics (SDSS), Seattle, WA, *May, 2019*
- IMS Asia Pacific Rim Meeting (IMS-APRM), Singapore, *Jun., 2018*
- Computational and Methodological Statistics (CMStatistics), UK, *Dec., 2017*

**Refereed Machine Learning Conference Reviewer:**

ICML 2018, 2019; ICLR 2018, 2019; AAAI 2019; NIPS 2016, 2017, 2018, 2019; AISTAT 2018; WWW 2016; CIKM 2016

**Journal Reviewer:**

Annals of Statistics, Journal of the American Statistical Association, Journal of the Royal Statistical Society: Series B, Journal of Machine Learning Research, Annals of Applied Statistics, Electronic Journal of Statistics, Statistica Sinica, Journal of Statistical Planning and Inference, Journal of Multivariate Analysis, Computational Statistics, Statistical Analysis and Data Mining

**Grant Reviewer:**

NSA-AMS Grant Program, 2015

**University Committee and Administrative Responsibilities:**

- PhD Coordinator of Management Science, University of Miami, 2018-2019
- Departmental Seminar Organizer, University of Miami, 2016-2019
- PhD Student Recruitment, University of Miami, 2016-2019
- Faculty Hiring Committee, University of Miami, 2017-2018

**Memberships:**

- The Institute for Operations Research and the Management Sciences (INFORMS)
- Institute of Mathematical Statistics (IMS)
- American Statistical Association (ASA)