ZHAO REN

Department of Statistics ◇ 1812 Wesley W. Posvar Hall ◇ Pittsburgh, PA, 15260, USA

412-648-9382 ◇ zren@pitt.edu

PROFESSIONAL EXPERIENCE

Associate Professor, Department of Statistics, University of Pittsburgh   *2020/9-Present*
Assistant Professor, Department of Statistics, University of Pittsburgh   *2014/9-2020/8*

EDUCATION

Yale University, New Haven, CT, USA   *2014*
Ph.D. in Statistics (Advisor: Prof. Harrison Zhou)

University of Pennsylvania, Philadelphia, PA, USA   *2009*
M.A. in Mathematics (Ph.D. Program)

Nanjing University, Nanjing, China   *2007*
B.S. in Mathematics

RESEARCH INTERESTS

- High Dimensional Statistical Inference,
- Robust Statistics,
- Graphical Models,
- Nonparametric Function Estimation,
- Covariance/Precision Matrix Estimation,
- Applications in Statistical Genomics and Protein Structure Modeling.

PUBLICATIONS

1. **Robust Distance Correlation for Variable Screening*** (with Fan Yang, Tianzhou Ma and Hongjie Ke) (*Student first authorship) *Accepted, STAT* 2025

2. **Adaptive Fisher's Method using Weakly Geometric Grid for Combining p-values with Application to COVID-19 Surveillance*** (with Yusi Fang and George Tseng) (*Student first authorship, ASA SIE Early Career Award) *Accepted, Journal of the Royal Statistical Society: Series C* 2025

3. **Gaussian Differentially Private Robust Mean Estimation and Inference** (with Myeonghun Yu and Wenxin Zhou) *Bernoulli* 2024, **30**(4):3059-3088

4. **Outcome-Guided Disease Subtyping by Generative Model and Weighted Joint Likelihood in Transcriptomic Applications** (with Yujia Li, Peng Liu, Wenjia Wang, Wei Zong, Yusi Fang, Lu Tang, Juan C. Celedón and George Tseng) *Annals of Applied Statistics* 2024, **18**(3):1947-1964

5. **Adaptive Minimax Density Estimation on $\mathbb{R}^d$ for Huber's Contamination Model*** (with Peiliang Zhang) (*Student first authorship) *Information and Inference: A Journal of the IMA* 2023, **12**(4):3042-3066

6. **Transcriptomic Congruence Analysis for Evaluating Model Organisms** (with Wei Zong, Tanbin Rahman, Li Zhu, Xiangrui Zeng, Yingjin Zhang, Jian Zou, Song Liu, Jingyi Li, Etienne Sibille, Adrian Lee, Steffi Oesterreich, Tianzhou Ma and George Tseng) *Proceedings of the National Academy of Sciences (PNAS)* 2023, **120**(6):e2202584120

7. **High-Dimension to High-Dimension Screening for Detecting Genome-Wide Epigenetic and Noncoding RNA Regulators of Gene Expression** (with Hongjie Ke, Shuo Chen, Jianfei Qi, George Tseng, Zhenyao Ye and Tianzhou Ma) *Bioinformatics* 2022, **38**(17):4078-4087

8. **Covariance-engaged Classification of Sets via Linear Programming** (with Sungkyu Jung and Xingye Qiao) *Statistica Sinica* 2022, **32**(3):1515-1540

9. **Inference of Large Modified Poisson-type Graphical Models: Application to RNA-seq Data in Childhood Atopic Asthma Studies*** (with Rong Zhang, Juan Celedón and Wei Chen) (*Student first authorship) *Annals of Applied Statistics* 2021, **15**(2):831-855

10. **Large Scale Multiple Inference on Collective Dependence with Applications to Protein Function** (with Robert Jernigan, Kejue Jia and Wen Zhou) *Annals of Applied Statistics* 2021, **15**(2):902-924

11. **Latent Dynamic Factor Analysis of High-Dimensional Neural Recordings** (with Heejong Bong, Zongge Liu, Matthew A. Smith, Valerie Ventura and Robert E. Kass) *Advances in Neural Information Processing Systems (NeurIPS)* 2020, **33**

12. **Minimax Estimation of Large Precision Matrices with Bandable Cholesky Factor*** (with Yu Liu) (*Student first authorship) *Annals of Statistics* 2020, **48**(4):2428-2454

13. **Variable Screening with Multiple Studies*** (with Tianzhou Ma and George Tseng) (*Student first authorship) *Statistica Sinica* 2020 **30**(2):925-953

14. **Tuning-Free Heterogeneous Inference in Massive Networks** (with Yongjian Kang, Yingying Fan and Jinchi Lv) *Journal of the American Statistical Association* 2019 **114**(528):1908-1925

15. **User-Friendly Covariance Estimation for Heavy-Tailed Distributions** (with Yuan Ke, Stanislav Minsker, Qiang Sun and Wenxin Zhou) *Statistical Science* 2019, **34**(3):454-471

16. **SILGGM: An Extensive R Package for Efficient Statistical Inference in Large-scale Gene Networks*** (with Rong Zhang and Wei Chen) (*Student first authorship) *PLOS Computational Biology* 2018, **14**(8):e1006369

17. **Robust Covariance and Scatter Matrix Estimation under Huber's Contamination Model** (with Mengjie Chen and Chao Gao) *Annals of Statistics* 2018, **46**(5):1932-1960

18. **Sparse CCA via Precision Adjusted Iterative Thresholding** (with Mengjie Chen, Chao Gao and Harrison H. Zhou) *Proceedings of the Seventh International Congress of Chinese Mathematicians* (Editors: Lizhen Ji, Lo Yang and Shing-Tung Yau) International Press of Boston, 2019, **Volume II**:481-534

19. **Variable Selection for a Categorical Varying-Coefficient Model with Identifications for Determinants of Body Mass Index** (with Jiti Gao, Bin Peng and Xiaohui Zhang) *Annals of Applied Statistics* 2017, **11**(2):1117-1145

20. **A General Decision Theory for Huber's ϵ-Contamination Model** (with Mengjie Chen and Chao Gao) *Electronic Journal of Statistics* 2016, **10**(2):3752-3774

21. **Estimating Structured High-Dimensional Covariance and Precision Matrices: Optimal Rates and Adaptive Estimation** (with T. Tony Cai and Harrison H. Zhou) *Electronic Journal of Statistics with* **Discussions and Rejoinder** 2016, **10**(1):1-89

22. **Asymptotically Normal Estimation of Covariate-Adjusted Gaussian Graphical Model** (with Mengjie Chen, Hongyu Zhao and Harrison H. Zhou) *Journal of the American Statistical Association* 2016, **111**(513):394-406

23. **FastGGM: An Efficient Algorithm for the Inference of Gaussian Graphical Model in Biological Networks** (with Ting Wang, Ying Ding, Zhou Fang, Zhe Sun, Matthew MacDonald, Robert Sweet, Jieru Wang and Wei Chen) *PLOS Computational Biology* 2016, **12**(2):e1004755

24. **Minimax Estimation in Sparse Canonical Correlation Analysis** (with Chao Gao, Zongming Ma and Harrison H. Zhou) *Annals of Statistics* 2015, **43**(5):2168-2197

25. **Asymptotic Normality and Optimalities in Estimation of Large Gaussian Graphical Model** (with Tingni Sun, Cun-Hui Zhang and Harrison H. Zhou) *Annals of Statistics* 2015, **43**(3):991-1026

26. **Optimal Rates of Convergence for Estimating Toeplitz Covariance Matrices** (with T. Tony Cai and Harrison H. Zhou) *Probability Theory and Related Fields* 2013, **156**(1-2):101-143

27. **Discussion: Latent Variable Graphical Model Selection via Convex Optimization** (with Harrison H. Zhou) *Annals of Statistics* 2012 **40**(4):1989-1996

Collaborative Papers

28. **Transcriptome-Wide and Differential Expression Network Analyses of Childhood Asthma in Nasal Epithelium*** (with Erick Forno, Rong Zhang, Yale Jiang, Qi Yan, Yueh-Ying Han, Nadia Boutaoui, Franziska Rosser, Daniel Weeks, Edna Acosta-Perez, Angel Colon-Semidey, Maria Alvarez, Glorisa Canino, Wei Chen and Juan Celedón) (*Student first authorship) *The Journal of Allergy and Clinical Immunology* 2020, **146**(3):671-675

List of Manuscripts

29. **Distributed Robust Estimation and Inference with Contaminated Data*** (with Wenxin Zhou and Peiliang Zhang) (*Student first authorship) *Major Revision, Electronic Journal of Statistics*

30. **Mini-batch Estimation for Deep Cox Models via SGD: Statistical Foundations and Practical Guidance** (with Lang Zeng, Weijing Tang and Ying Ding) *Major Revision, Journal of the American Statistical Association*

31. **Model-Free Inference for Characterizing Protein Mutations through a Coevolutionary Lens*** (with Fan Yang, Wen Zhou, Kejue Jia and Robert Jernigan) (*Student first authorship) *Major Revision, Annals of Applied Statistics*

32. **Modeling and Prediction of Mutation Fitness on Protein Functionality with Structural Information using High-Dimensional Potts Model** (with Bingying Dai, Yinan Lin, Wen Zhou and Kejue Jia) *Major Revision, Annals of Applied Statistics*

33. **Nonparametric Quantile Regression with ReLU-Activated Recurrent Neural Networks** (with Hang Yu, Lyumin Wu and Wen-Xin Zhou) *Manuscript*

34. **Sparse Heteroskedastic PCA in High Dimensions*** (with Rui Kang and Peiliang Zhang) (*Student first authorship) *Manuscript*

35. **Simultaneous Inference in Multiple Matrix-Variate Graphs for High-Dimensional Neural Recordings** (with Heejong Bong, Zongge Liu, Matthew Smith and Robert Kass) *Manuscript*

36. **Pairwise Difference Estimation of High Dimensional Partially Linear Model** (with Fang Han and Yuxin Zhu) *Manuscript*

SOFTWARE

- **AFg**: Adaptive Fisher's Method that Leverages Weakly Geometric Grid to Adaptively Search for a Suitable Truncation Point

- **RobustDC**: A Huber-type Robust Distance Correlation Measure (called "RDC") for Sure Screening

- **rPCor**: A Robust High-dimension to High-dimension Variable Screening Method for Detecting Genome-wide Epigenetic Regulators of Gene Expression

- **ModPGMInference**: Edge-wise and Global Statistics Inference for Modified Poisson-type Graphical Models

- **HGSL**: Estimation of High-dimensional Multi-response Regression with Heterogeneous Noises under Heterogeneous Group Square-root Lasso Penalty

- **FastGGM**: A Fast Algorithm for Inference of Gaussian Graphical Model

- **SILGGM**: Statistical Inference of Large-Scale Gaussian Graphical Model in Gene Networks

TEACHING AND ADVISING

University of Pittsburgh

- STAT 1000 Applied Statistical Methods,   Fall 2016
- STAT 1151 Introduction to Probability,   Fall 2014
- STAT 1152 Introduction to Mathematical Statistics,   Spring 2018
- STAT 1631/2630 Intermediate Probability,   Fall 2017, 2018
- STAT 1632/2640 Intermediate Mathematical Statistics,   Spring 2020
- STAT 2631 Theory of Statistics I,   Spring 2020, 2021, Fall 2021, 2022, 2025
- STAT 2641 Asymptotic Methods in Statistics,   Spring 2016, 2017, 2023, 2024, 2025, Fall 2018, 2020
- STAT 2691 Nonparametric Theory,   Spring 2015, Fall 2017, 2019, 2022
- STAT 2711 Probability Theory I,   Fall 2024
- STAT 3694 Introduction to High-Dimensional Statistics,   Fall 2015, Spring 2019, 2021, 2024

Short Course/Workshop Lecturer

- Lecture Series on Probability Limit Theorems for Ph.D. Students in Quantitative Empirical Methods Fields, Department of Political Science, Yale University   Summer 2012, 2013

Tutor

- Yale Residential College Math and Science Program for Math and Science Courses   2012-2014

Doctoral Students

- Yu Liu: "Minimax Estimation of Large Precision Matrices with Bandable Cholesky Factors" (recipient of Andrew Mellon Predoctoral Fellowships) 2018. Initial position: Model Risk Spec (VP) at BNY Mellon.

- Tianzhou Ma (*joint with George Tseng*): "Differential Expression and Feature Selection in the Analysis of Multiple Omics Studies" 2018. Initial position: Tenure-track Assistant Professor of Biostatistics at the University of Maryland

- Xiaonan Zhu (*joint with Satish Iyengar*): "High-Dimensional Bias-Corrected Inference, with Applications to fMRI Studies" 2019. Initial position: Senior Statistician, Department of Epidemiology at the University of Pittsburgh

- Rong Zhang: "High-Dimensional Inference of Modified Poisson-Type Graphical Models and Robust Sparse CCA, with Applications to Large-Scale Omics Data" (recipient of Andrew Mellon Predoctoral Fellowships; recipient of 2019 ENAR RAB Poster Competition Award, 2019 Student of the Year, ASA Pittsburgh Chapter) 2020. Initial position: Biostatistics Manager at Amgen.

- Peiliang Zhang: "Robust Estimation and Inference under Huber's Contamination Model" (recipient of Andrew Mellon Predoctoral Fellowships; 2021 Student of the Year, ASA Pittsburgh Chapter) 2022. Initial position: Quantitative Analytics at Freddie Mac.

- Yusi Fang (*joint with George Tseng*): "Methods for Combining Frequent or Sparse Signals in Omics Applications" (ASA SIE Early Career Award; 2023 Student of the Year, ASA Pittsburgh Chapter) 2023. Initial position: FDA Mathematical Statistician

- Rui Kang: "Sparse Heteroskedastic PCA in High Dimensions" (recipient of Andrew Mellon Predoctoral Fellowships; 2024 Student of the Year, Best Poster Award, ASA Pittsburgh Chapter) 2024. Initial position: Senior Scientist of Biostatistics at Merck

- Fan Yang: "Model-free Inference for Characterizing Protein Mutations through a Co-evolutionary Lens" 2025. Initial position: Postdoctoral Fellow at Fred Hutchinson Cancer Center (Mentor: Jessica Li)

- Jiaxuan Duan (*joint with Chris McKennan*): "Recovering Latent Factors in Data with Strong and Weak Signals: From Theory to Practice" Dec 2025 expected.

- Shubha Banerjee: "Heteroskedastic PCA and Gaussian Graphical Models under Differential Privacy" (Selected as one of four nominees for the 2025 Google PhD Fellowship from the University of Pittsburgh) In progress.

Doctoral Dissertation as a Committee Member

- **Statistics:** Brian McGill (2017, Chair: Satish Iyengar), Brian Rooks (2018, Chair: Sungkyu Jung), Byungwon Kim (2018, Chair: Sungkyu Jung), Bowen Yi (2018, Chair: Satish Iyengar), Brian Lynch (2018, Chair: Kehui Chen), Xing Gao (2020, Chair: Sungkyu Jung), Wei Peng (2021, Chair: Lucas Mentch), Haeun Moon (2022, Chair: Kehui Chen), Weiqiong Huang (April 2025 expected, Chair: Chris McKennanm), Manuel Garcia Acosta (April 2026 expected, Chair: Chris McKennanm), Zhexuan Li (April 2026 expected, Chair: Satish Iyengar)

- **Biostatistics:** Zhigang Huo (2017, Chair: George Tseng, Initial position: Tenure-track Assistant Professor of Biostatistics at the University of Florida), Xiaotian Gao (2020, Chair: Abdus Wahed, Initial position: Tenure-track Assistant Professor of Biostatistics at the University of Illinois at Urbana-Champaign), Molin Yue (2025 expected, Chair: Wei Chen), Lang Zeng (2026 expected, Chair: Ying Ding), Xuelin Gu (2026 expected, Chair: Gong Tang),

- **CMU, Statistics and Data Science:** Zongge Liu (2020, Chair: Robert Kass), Beomjo Park (2023, Chairs: Siva Balakrishnan and Larry Wasserman)

- **Mathematics:** Xiaojuan Sun (2020, Chair: Hao Xu)

- **Computer Science:** Zhipeng Luo (2020, Chair: Milos Hauskrecht, Initial position: Postdoc at Department of Industrial Engineering and Management Sciences, Northwestern University)

- **School of Medicine:** Kylia Williams (2021, Chair: Cecilia Lo)

Master Thesis as a Committee Member

- **Statistics:** Yiding Liu (2021, Chair: Chris McKennan)

GRANTS

- (**PI**) National Institutes of Health, NIGMS R01GM157600, *An Effective Statistical Inference Framework to Develop Innovative Compensations for Protein Mutations*, 2024/9-2027/8. (total: $610,871)

- (Co-I) Patient-Centered Outcomes Research Institute (PCORI), (PI: Wahed), *Pragmatic Comparative Effectiveness using Sequential Multiple Assignment Randomized Trials*, 2023/3-2026/2. (sub only: $?)

- (Co-I) National Institutes of Health, NLM R01LM014142 (PI: Tseng), *Disease Subtyping Guided by Clinical Phenotype for Precision Medicine*, 2023/2-2026/11. (sub only: $?)

- (**PI**) National Science Foundation, DMS – 2113568, *New Frontiers of Robust Statistics in the Era of Big Data*, 2021/7-2025/6. (total: $235,948)

- (**Co-PI → Subcontract PI**) National Institutes of Health, NIGMS R01GM144961 (PI: Zhou), *Statistical Methods for Higher Order Dependences to Understand Protein Functions*, 2021/9-2024/8. (sub only: $191,232)
  *Co-PI when the grant was reviewed and recommended for an award through the NIH R01 mechanism; changed to subcontract-PI afterwards, due to NIH's requirement of accepting only one PI on this type of NIH/NSF jointly sponsored grants.

- (Senior Personnel) National Science Foundation, IIP-2052662 (PI: Liu), *IUCRC Phase I: University of Pittsburgh: Center for Materials Data Science for Reliability and Degradation (MDS-Rely)*, 2021/7-2026/6. (sub only: $?)

- (Co-I) National Institutes of Health, NIMH R01MH121451 (PI: Diler) *From Manic Symptoms to Bipolar Disorder: Neural-behavioral Markers Using Two Analytic Models*, 2020/3-2025/1. (sub only: $198,005)

- (Co-I) National Institutes of Health, NIMH R01MH111600 (PI: Ladouceur and Diler) *Positive Valence Systems and Manic Symptom Trajectories in Adolescent Depression*, 2019/12-2023/10. (sub only: $187,991)

- (**PI**) Central Research Development Fund (CRDF), University of Pittsburgh, *New Frontiers of Robust Statistics for Contamination Models in High-dimensional Data Analysis*, 2019/7-2021/6. (direct: $15,823)

- (**PI**) National Science Foundation, DMS – 1812030, *New Methods and Theory of Statistical Inference for Non-Gaussian Graphical Models*, 2018/7-2021/6. (total: $129,999)

- (Co-I) National Institutes of Health, NLM R21LM012752 (PI: Tseng), *Congruence of Mouse Model to Human in Transcriptomic Response*, 2018/9-2020/8. (total: $166,795)

- (**PI**) CTSI Biomedical Modeling Pilot Award, National Center for Advancing Translational Sciences (NCATS) - UL1TR001857, *Novel Statistical Learning of Oncogenic Networks*, 2017/3-2017/9 (direct: $25,000)

PRESENTATIONS

Invited Conference Talks

(Invited Speaker unless otherwise noted)

- *Joint Meeting of the Taipei International Statistical Symposium and the 13th ICSA International Conference, Taipei, Taiwan, Dec 2025*

- *The 8th International Conference on Econometrics and Statistics (EcoSta), Tokyo, Japan, Aug 2025*

- *The 9th Conference of Data Science, Statistics & Visualisation (DSSV), Kruger National Park, South Africa, July 2025*

- *Complex Data Analysis Workshop, Southwestern University of Finance and Economics, China, June 2025*

- *The First Macau International Conference on Business Intelligence and Analytics, Macau, Dec 2024*

- *Keystone State Statistics Symposium, Pittsburgh, Oct 2024*

- *International Conference on Robust Statistics (ICORS), Fairfax, Aug 2024*

- *The 7th International Conference on Econometrics and Statistics (EcoSta), Beijing, China, July 2024*

- *Hangzhou International Conference on Frontiers of Data Science, Hangzhou, China, July 2024*

- *International Symposium on Nonparametric Statistics (ISNPS), Braga, Portugal, June 2024*

- *Meeting in Mathematical Statistics at CIRM, Luminy, Marseille, France, Dec 2023*

- *The 6th International Conference on Econometrics and Statistics (EcoSta), Tokyo, Japan, Aug 2023*

- *Joint Conference on Statistics and Data Science (JCSDS), Peking University, China, July 2023*

- *Summer Research Camp, Australian National University, RSFAS, College of Business and Economics, Australia, Dec 2022*

- *Stevanovich Conference, University of Chicago, Oct 2022*

- *CSDA & EcoSta Workshop on Statistical Data Science (SDS 2022), Bologna, Italy, Aug 2022*

- *2022 ICSA Canada Conference, Banff, July 2022*

- *2022 ICSA China Conference, Xi'an, China, July 2022*

- *The 5th International Conference on Econometrics and Statistics (EcoSta), Kyoto, Japan, June 2022*

- *ENAR 2022 Spring Meeting, Houston, Mar 2022*

- *11th Conference of the Asian Regional Section of the International Association for Statistical Computing, Kyoto, Japan, Feb 2022*

- *14th International Conference of the ERCIM WG on Computational and Methodological Statistics, London, UK, Dec 2021*

- *2021 WNAR/IMS/KISS/JR Annual Meeting, Virtual, June 2021*

- *13th International Conference of the ERCIM WG on Computational and Methodological Statistics, Virtual, Dec 2020*

- *11th ICSA International Conference, Zhejiang University, China, Dec 2019*

- *62nd ISI World Statistics Congress, Kuala Lumpur, Malaysia, Aug 2019*

- *Workshop on Frontiers of Data Science, Southwestern University of Finance and Economics, China, July 2019*

- *IMS-China International Conference on Statistics and Probability, Dalian, China, July 2019*

- *2019 ICSA China Conference, Tianjin, China, July 2019*

- *2019 Hangzhou International Conference on Frontiers of Data Science, Hangzhou, China, May 2019*

- *Symposium: "Statistics and Data Science: Beyond Big, Corrupted or Missing Data", Halicioglu Data Science Institute (HDSI), University of California, San Diego, Jan 2019*

- *11th International Conference of the ERCIM WG on Computational and Methodological Statistics, University of Pisa, Italy, Dec 2018*

- *ICSA Applied Statistics Symposium, New Brunswick, June 2018*

- *Meeting the Statistical Challenges in High Dimensional Data and Complex Networks, Institute for Mathematical Sciences, Singapore, Feb 2018*

- Topic-contributed Speaker, *Joint Statistical Meetings, Baltimore, Aug 2017*

- *New Researchers Workshop on Statistics, Southwestern University of Finance and Economics, China, July 2017*

- *IMS-China International Conference on Statistics and Probability, Nanning, China, June 2017*

- *ICSA Applied Statistics Symposium, Chicago, June 2017*

- *10th ICSA International Conference, Shanghai Jiao Tong University, China, Dec 2016*

- Topic-contributed Speaker, *Joint Statistical Meetings, Chicago, Aug 2016*

- *ICSA Conference on Data Science, Dali, China, July 2016*

- *4th Institute of Mathematical Statistics Asia Pacific Rim Meeting (IMS-APRM), Hong Kong, June 2016*

- *Conference on Statistical Learning and Data Science, Chapel Hill, June 2016*

- *8th International Conference of the ERCIM WG on Computational and Methodological Statistics (ERCIM 2015), University of London, UK, Dec 2015*

- *60th ISI World Statistics Congress, Rio de Janeiro, Brazil, July 2015*

- *New Researchers Conference on High-Dimensional Statistics in the Age of Big Data, Peking University, China, June 2015*

- *10th International Conference on "Frontiers of Statistics", Beijing, China, June 2015*

- *ICSA Applied Statistics Symposium, Fort Collins, June 2015*

- Invited Participant, AIM Workshop: Inference in High-Dimensional Regression, *American Institute of Mathematics, Palo Alto, Jan 2015*

- Contributed Speaker, *ICSA Applied Statistics Symposium, Portland, June 2014*

- Contributed Speaker, *Joint Statistical Meetings, Montreal, Aug 2013*

- *New England Statistics Symposium, University of Connecticut, April 2013*

- *ICSA Applied Statistics Symposium, Boston, June 2012*

- Poster, *Conference on Statistical Learning and Data Mining, University of Michigan, June 2012*

- Poster, *Conference "Borrowing Strength Theory Powering Applications", in Honor of Larry Brown's 70th Birthday, University of Pennsylvania, Dec 2010*

Invited Departmental Seminars

- University of Minnesota at Twin Cities, School of Statistics, *Sep 2025*

- Peking University, School of Mathematical Sciences, *May 2025*

- University of Maryland, Baltimore County, Department of Mathematics and Statistics, *Apr 2025*

- New York University, Department of Biostatistics, *Nov 2024*

- Hong Kong University of Science and Technology, Department of Mathematics, *Nov 2023*

- One World Mathematics of INformation, Data and Signials (1W-MINDS) Seminar, *Nov 2023*

- Renmin University of China, Institute of Statistics and Big Data, *Sep 2023*

- University of Pittsburgh, Department of Economics, *Apr 2023*

- McGill University, Department of Mathematics and Statistics, *Mar 2023*

- Southern University of Science and Technology, Department of Statistics and Data Science, *Mar 2023*

- University of Iowa, Department of Statistics and Actuarial Science, *Nov 2022*

- University of Pittsburgh, Department of Biostatistics, *Oct 2022*

- Southwestern University of Finance and Economics, School of Statistics, *Mar 2021*

- Rutgers University, Department of Statistics, *Nov 2020*

- Temple University, Department of Statistical Science, Fox School of Business and Management, *Mar 2020*

- Indiana University at Bloomington, Department of Statistics, *Mar 2020*

- University of Illinois at Chicago, Department of Mathematics, Statistics, and Computer Science *Jan 2020*

- Zhejiang University, Center of Mathematical Sciences, *May 2019*

- University of Georgia, Department of Statistics, *Apr 2019*

- University of Akron, Department of Statistics, *Nov 2018*

- University of Toronto, Department of Statistical Sciences, *Sep 2018*

- Renmin University of China, School of Statistics, *Aug 2018*

- Colorado State University, Department of Statistics, *Oct 2017*

- Temple University, Department of Statistical Science, Fox School of Business and Management, *Sep 2017*

- University of Wisconsin at Madison, Department of Statistics, *Oct 2016*

- Carnegie Mellon University, Department of Statistics, *Oct 2016*

- Penn State University, Department of Statistics, *Sep 2016*

- New York University, Department of Information, Operations, and Management Sciences, Stern School of Business, *May 2015*

- University of Pittsburgh, Department of Biostatistics, *Oct 2014*

- University of the Witwatersrand, School of Statistics & Actuarial Science, *June 2014*

- University of Cambridge, Department of Pure Mathematics and Mathematical Statistics, *Feb 2014*

- University of Pittsburgh, Department of Statistics, *Feb 2014*

- Rice University, Department of Statistics, *Feb 2014*

- University of Southern California, Department of Data Sciences and Operations, *Feb 2014*

- University of Cincinnati, Lindner College of Business, *Feb 2014*

- University of Kentucky, Department of Statistics, *Feb 2014*

OTHER RESEARCH EXPERIENCE

Machine Learning Group, Microsoft Research, Redmond, WA, USA Summer 2011
- Topic: On Nondecomposable Empirical Risk Minimization: Toward a Theoretical Foundation of Information Retrieval
- Mentor: Dr. Dengyong (Denny) Zhou

HONORS AND AWARDS

- **AMS-Simons Travel Grant**, American Mathematical Society 2018-2020
- **CTSI Biomedical Modeling Pilot Award (PI)**, The Clinical and Translational Science Institute (stemming from an institutional award made by the National Center for Advancing Translational Sciences (NCATS)), University of Pittsburgh 2016
- **Hewlett International Grant**, University of Pittsburgh 2015, 2019
- **Francis J. Anscombe Award for Outstanding Academic Performance**, Yale University 2014
- **University Dissertation Fellowship**, Yale University 2013-2014
- **Laha/Travel Award**, Institute of Mathematical Statistics 2013
- **IBM Best Student Research Award**, New England Statistical Symposium 2013
- **Best Poster Award** Conference "Borrowing Strength Theory Powering Applications", in Honor of Larry Brown's 70th Birthday 2010
- **Benjamin Franklin Scholarship**, University of Pennsylvania 2007-2009
- **Outstanding Graduate of Nanjing University**, Nanjing University 2007
- **Yukang Zhou Scholarship**, Nanjing University 2006
- **First Prize, Renmin Scholarship**(given to top 3% students), Nanjing University 2004-2006

PROFESSIONAL SERVICE

Intramural Services
- Dietrich School of Arts and Sciences, Tenure Council Member 2022-2024
- Dietrich School of Arts and Sciences, Nominating Committee 2022-2023
- Dietrich School of Arts and Sciences, ad hoc Tenure Promotion Committee 2021, 2023, 2024
- Dietrich School of Arts and Sciences, Grad Expo Judges 2021
- Department of Statistics, Undergraduate Curriculum Committee 2023-Present
- Department of Statistics, Graduate Curriculum Committee 2022-Present
- Department of Statistics, Course Coordinator 2017-Present

- Department of Statistics, Qualifying Exam Committee   2017-Present
- Department of Statistics, Graduate Admission Committee   2014-Present
- Department of Statistics, Seminar Committee Chair   2015-2017
- Department of Statistics, Faculty Promotion Reading Committee   2022
- Department of Statistics, Faculty Third-Year Review Committee   2021
- Department of Statistics, Search Committee for Tenured/Tenure-Stream Faculty Positions
                                          2015, 2018, 2019, 2022, 2023, 2024
- Department of Biostatistics, Search Committee for Tenure-Stream Faculty Positions   2021
- Department of Statistics, Search Committee for Lecturer Positions   2017, 2018
- Department of Statistics, Search Committee for Visiting Faculty Positions   2020

Referee of Journals

Annals of Statistics; *Annals of Applied Statistics*; *Journal of the American Statistical Association*; *Journal of the Royal Statistical Society, Series B*; *Biometrika*; *Statistical Science*; *Journal of Econometrics*; *Econometric Theory*; *Bernoulli*; *Electronic Journal of Statistics*; *IEEE Transactions on Information Theory*; *Statistica Sinica*; *Journal of Machine Learning Research*; *Journal of Business & Economic Statistics*; *Information and Inference: A Journal of the IMA*; *Applied and Computational Harmonic Analysis*; *Journal of Computational and Graphical Statistics*; *Journal of Multivariate Analysis*; *Biostatistics*; *Scandinavian Journal of Statistics*; *Statistics and Its Interface*; *Statistics and Computing*; *Annals of the Institute of Statistical Mathematics*; *Journal of Nonparametric Statistics*; *Computational Statistics and Data Analysis*; *Test*; *Stat*; *Science China Mathematics*; *IEEE International Symposium on Information Theory (ISIT)*; *Annual Computational Learning Theory (COLT)*; *Briefings in Bioinformatics*.

Editorial Board, Proposal Panel Member and External Services

- Associate Editor of *Electronic Journal of Statistics*, 2025–current
- Associate Editor of *Journal of Business & Economic Statistics*, 2024–current
- Associate Editor of *Statistica Sinica*, 2022–current
- Editorial board reviewer of *The Journal of Machine Learning Research*, 2020–current
- Secretary / Treasurer of ASA Section on Statistical Learning and Data Science, 2024–2025
- President (President-Elect) of ASA Pittsburgh Chapter, 2023–2024 (2022–2023)
- Panel Member: National Science Foundation (NSF) Division of Mathematical Sciences
- Reviewer: National Science Foundation (NSF) Division of Social and Economic Sciences
- Reviewer: National Security Agency (NSA) Mathematical Sciences Grants Program
- Panel Member: CTSI Biomedical Modeling Pilots, University of Pittsburgh 2017, 2020
- Doctorate Examination Member, Monash University, 2023

Book or Book Proposal Reviewer

- Chapman & Hall/CRC Press

Conference Committee/Session Organizer or Chair

- Program Committee Member, *The Conference on Statistical Learning and Data Science (SLDS 2026 of ASA), New York City, Oct 2026*
- SLDS Student Paper Award Committee, *JSM, Nashville, Tennessee, Aug 2025*

- Invited Session Organizer on "Recent Development on Statistical Inference for Complex Data", *The 8th International Conference on Econometrics and Statistics (EcoSta), Tokyo, Aug 2025*

- Invited Session Organizer on "Modern Statistical Analysis For High-Dimensional and Network Data", *The 9th conference of Data Science, Statistics & Visualisation (DSSV) , Kruger Park, South Africa, July 2025*

- Student Research Award Committee Member, *The 37th New England Statistical Symposium, CT, May 2024*

- SLDS Student Paper Award Committee, *JSM, Portland, Oregon, Aug 2024*

- Invited Session Organizer on "Statistical Inference on Complex Data", *The 7th International Conference on Econometrics and Statistics (EcoSta), Beijing, July 2024*

- Scientific Program Committee Member, *The 7th International Conference on Econometrics and Statistics (EcoSta), Beijing, July 2024*

- Student Poster Award Committee, *ASA Pittsburgh Chapter Spring Banquet, Pittsburgh, Apr 2023*

- Invited Session Organizer on "Advances of High-Dimensional Statistics in Biological and Biomedical Research", *The 6th International Conference on Econometrics and Statistics (EcoSta), Tokyo, Aug 2023*

- Invited Session Organizer on "Recent Advances of High-dimensional Inference and Statistical Learning", *9th International Forum on Statistic, Beijing, July 2023*

- Invited Session Organizer on "Advances in High-Dimensional Data Analysis and Spectral Methods", *15th International Conference of the ERCIM WG on Computational and Methodological Statistics, London, Dec 2022*

- Scientific Program Committee Member, *15th International Conference of the ERCIM WG on Computational and Methodological Statistics, London, Dec 2022*

- Invited Session Organizer on "Nonasymptotic Statistics and Econometrics" *CSDA & EcoSta Workshop on Statistical Data Science (SDS 2022), Bologna, Italy, Aug 2022*

- Invited Session Organizer on "Recent Advances of Statistical Modeling in Biomedical Research", "Recent Advances and Challenges in Statistical Learning", and "New Techniques in Testing and Estimation for High-Dimensional Data" *The 2022 International Chinese Statistical Association (ICSA) China Conference, Xi'an, China, July 2022*

- Program Committee Member, *The 2022 International Chinese Statistical Association (ICSA) China Conference, Xi'an, China, July 2022*

- SLDS Student Paper Award Committee, *JSM, Washington DC, Aug 2022*

- Outstanding Young Researcher Award Committee, *11th Conference of the Asian Regional Section of the International Association for Statistical Computing (IASC-ARS), Kyoto, Feb 2022*

- Invited Session Organizer on "Recent Advances in Big Data Learning with Network Structures", *11th Conference of the Asian Regional Section of the International Association for Statistical Computing (IASC-ARS), Kyoto, Feb 2022*

- Invited Session Organizer on "Advances in Statistical Learning and Inference with Robust Insights", *14th International Conference of the ERCIM WG on Computational and Methodological Statistics, London, Dec 2021*

- Invited Paper Session Chair on "Modern Robust Statistics on Complex Data", *62nd ISI World Statistics Congress, Kuala Lumpur, Malaysia, Aug 2019*

- Invited Session Organizer on "Recent Advances of Time Series and Complex Data Analysis", *2019 IMS-China International Conference on Statistics and Probability, Dalian, China, July 2019*

- IBM Student Paper Committee Member, *The 33rd New England Statistical Symposium, CT, May 2019*
- Program Committee Member, *The 2018 ICSA Applied Statistics Symposium, New Brunswick, NJ, June 2018*
- Invited Paper Session Organizer on "Recent Advances of Statistical Modeling in Biomedical Research", *The 2018 ICSA Applied Statistics Symposium, New Brunswick, NJ, June 2018*
- Invited Paper Session Organizer on "Recent Advances and Challenges in Big Data Inference", *The 5th IMS Asia Pacific Rim Meeting, Singapore, June 2018*
- Invited Paper Session Organizer on "Recent Advances and Challenges in High Dimensional Data", *The 2nd International Conference on Econometrics and Statistics (EcoSta), Hong Kong, June 2018*
- Invited Session Chair on "Foundations of Network Analysis", *JSM, Baltimore, MD, Aug 2017*
- Invited Paper Session Organizer on "Recent Advances in Big Data Inference with Network Structures", *61st World Statistics Congress, Marrakech, Morocco, July 2017*
- Invited Session Organizer on "New Methods for Analyzing High Dimensional Data", *2017 IMS-China International Conference on Statistics and Probability, Nanning, China, June 2017*
- Invited Session Organizer on "Recent Advances in Robust High-Dimensional Estimation and Inference", *10th ICSA International Conference, Shanghai, China, Dec 2016*
- Invited Session Organizer on "Recent Advances and Challenges of Big Data Inference with Complex Structures", *JSM, Chicago, IL, Aug 2016*
- Topic-Contributed Session Organizer on "Recent Developments of Graphical Modeling of Data with Complex Structures", *JSM, Chicago, IL, Aug 2016*
- Invited Session Chair on "Recent Advances on Nonparametric and High-Dimensional Statistics", *10th International Conference on Frontiers of Statistics, Beijing, China, June 2015*

Volunteer

- NSF Workshop for High-Dimensional Data: Theory, Methodology and Applications, Yale   2012
- International Conference on Statistics and Society, Beijing   2010

PROFESSIONAL MEMBERSHIPS

- Member, Institute of Mathematical Statistics
- Member, American Statistical Association
- Member, International Chinese Statistical Association
- Member, International Statistical Institute