

Wenxin Zhou

Department of Mathematics
University of California, San Diego
9500 Gilman Dr.
La Jolla, CA 92093

Phone: (858) 534-2640
Email: wez243@ucsd.edu
Homepage: sites.google.com/view/wenxinzhou
[Google Scholar](#)

POSITIONS

Associate Professor (July 2021 –)

Department of Mathematics, University of California, San Diego

Assistant Professor (July 2017 – June 2021)

Department of Mathematics, University of California, San Diego

Postdoctoral Research Associate (Sep 2015 – June 2017)

Department of Operations Research & Financial Engineering, Princeton University

Adviser: [Jianqing Fan](#)

Research Fellow (Aug 2013 – Sep 2015)

School of Mathematics and Statistics, University of Melbourne

Adviser: [Aurore Delaigle](#)

EDUCATION

Ph.D. in Mathematics – Hong Kong University of Science and Technology (2009 – 2013)

Thesis: Cramér type moderate deviation theorems for Studentized non-linear statistics with applications to high-dimensional statistical inference

Adviser: [Qi-Man Shao](#)

B.Sc. in Mathematics – Shanghai Jiao Tong University (2004 – 2008)

RESEARCH INTERESTS

Asymptotic theory in probability and statistics; High dimensional and large-scale statistical analysis; Nonparametric and robust statistics; Quantile regression.

PUBLICATIONS

1. J. Luo, Q. Sun and W.-X. Zhou. (2021+). Distributed adaptive Huber regression. *Computational Statistics & Data Analysis*, in press. [arXiv preprint arXiv:2107.02726](#).
2. A. Ying and W.-X. Zhou. (2021+). On the asymptotic distribution of the scan statistic for empirical distributions. *Extremes*, in press. [arXiv preprint arXiv:1910.01809](#).
3. K. M. Tan, L. Wang and W.-X. Zhou. (2021+). High-dimensional quantile regression: Convolution smoothing and concave regularization. *Journal of the Royal Statistical Society: Series B*, in press. [arXiv preprint arXiv:2109.05640](#).
4. Y. Song, W. Zhou and W.-X. Zhou. (2021+). Large-scale inference of multivariate regression for heavy-tailed and asymmetric data. *Statistica Sinica*, in press. DOI: [10.5705/ss.202021.0003](https://doi.org/10.5705/ss.202021.0003).

5. X. He, X. Pan, K. M. Tan and W.-X. Zhou. (2021+). Smoothed quantile regression with large-scale inference. *Journal of Econometrics*, in press. DOI: [10.1016/j.jeconom.2021.07.010](https://doi.org/10.1016/j.jeconom.2021.07.010).
6. X. Pan and W.-X. Zhou. (2021). Multiplier bootstrap for quantile regression: Non-asymptotic theory under random design. *Information and Inference: A Journal of the IMA* **10**(3) 813–861. DOI: [10.1093/imaiai/iaaa006](https://doi.org/10.1093/imaiai/iaaa006).
7. L. Wang, C. Zheng, W. Zhou and W.-X. Zhou. (2021). A new principle for tuning-free Huber regression. *Statistica Sinica* **31**, 2153–2177. DOI: [10.5705/ss.202019.0045](https://doi.org/10.5705/ss.202019.0045).
8. X. Pan, Q. Sun and W.-X. Zhou. (2021). Iteratively reweighted ℓ_1 -penalized robust regression. *Electronic Journal of Statistics* **15**(1) 3287–3348. DOI: [10.1214/21-EJS1862](https://doi.org/10.1214/21-EJS1862).
9. X. Chen and W.-X. Zhou. (2020). Robust inference via multiplier bootstrap. *The Annals of Statistics* **48**(3) 1665–1691. DOI: [10.1214/19-AOS1863](https://doi.org/10.1214/19-AOS1863).
10. Q. Sun, W.-X. Zhou and J. Fan. (2020). Adaptive Huber regression. *Journal of the American Statistical Association* **115**(529) 254–265. DOI: [10.1080/01621459.2018.1543124](https://doi.org/10.1080/01621459.2018.1543124).
11. K. Bose, J. Fan, Y. Ke, X. Pan and W.-X. Zhou. (2020). FarmTest: An R package for factor-adjusted robust multiple testing. *The R Journal* **12**(2) 372–387. DOI: [10.32614/RJ-2021-023](https://doi.org/10.32614/RJ-2021-023).
12. Y. Ke, S. Minsker, Q. Sun, Z. Ren and W.-X. Zhou. (2019). User-friendly covariance estimation for heavy-tailed distributions. *Statistical Science* **34**(3) 454–471. DOI: [10.1214/19-STS711](https://doi.org/10.1214/19-STS711).
13. J. Fan, Y. Ke, Q. Sun and W.-X. Zhou. (2019). FarmTest: Factor-adjusted robust multiple testing with approximate false discovery control. *Journal of the American Statistical Association* **114**(528) 1880–1893. DOI: [10.1080/01621459.2018.1527700](https://doi.org/10.1080/01621459.2018.1527700).
14. J. Fan, Q. Sun, W.-X. Zhou and Z. Zhu. (2018). Principal component analysis for big data. *Wiley StatsRef: Statistics Reference Online*. DOI: [10.1002/9781118445112.stat08122](https://doi.org/10.1002/9781118445112.stat08122).
15. W.-X. Zhou, K. Bose, J. Fan and H. Liu. (2018). A new perspective on robust M -estimation: Finite sample theory and applications to dependence-adjusted multiple testing. *The Annals of Statistics* **46**(5) 1904–1931. DOI: [10.1214/17-AOS1606](https://doi.org/10.1214/17-AOS1606).
16. J. Fan, Q.-M. Shao and W.-X. Zhou. (2018). Are discoveries spurious? Distributions of maximum spurious correlations and their applications. *The Annals of Statistics* **46**(3) 989–1017. DOI: [10.1214/17-AOS1575](https://doi.org/10.1214/17-AOS1575).
17. E. X. Fang, H. Liu, K.-C. Toh and W.-X. Zhou. (2018). Max-norm optimization for robust matrix recovery. *Mathematical Programming, Series B* **167** 5–35. DOI: [10.1007/s10107-017-1159-y](https://doi.org/10.1007/s10107-017-1159-y).
18. F. Han, S. Xu and W.-X. Zhou. (2018). On Gaussian comparison inequality and its application to spectral analysis of large random matrices. *Bernoulli* **24**(3) 1787–1833. DOI: [10.3150/16-BEJ912](https://doi.org/10.3150/16-BEJ912).
19. J. Chang, C. Zheng, W.-X. Zhou and W. Zhou. (2017). Simulation-based hypothesis testing of high dimensional means under covariance heterogeneity. *Biometrics* **73**(4) 1300–1310. DOI: [10.1111/biom.12695](https://doi.org/10.1111/biom.12695).
20. Q.-M. Shao and W.-X. Zhou. (2017). Self-normalization: Taming a wild population in a heavy-tailed world. *Applied Mathematics—A Journal of Chinese Universities* **32**(3) 253–269. DOI: [10.1007/s11766-017-3552-y](https://doi.org/10.1007/s11766-017-3552-y).
21. J. Chang, W. Zhou, W.-X. Zhou and L. Wang. (2017). Comparing large covariance matrices under weak conditions on the dependence structure and its application to gene clustering. *Biometrics* **73**(1) 31–41. DOI: [10.1111/biom.12552](https://doi.org/10.1111/biom.12552).
22. W.-X. Zhou, C. Zheng and Z. Zhang. (2017). Two-sample smooth tests for the equality of

- distributions. *Bernoulli* **23**(2) 951–989. DOI:10.3150/15-BEJ766.
23. J. Fan and W.-X. Zhou. (2016). Guarding against spurious discoveries in high dimensions. *Journal of Machine Learning Research* **17**(203) 1–34. jmlr.org.
24. A. Delaigle, P. Hall and W.-X. Zhou. (2016). Nonparametric covariate-adjusted regression. *The Annals of Statistics* **44**(5) 2190–2220. DOI:10.1214/16-AOS1442.
25. J. Chang, Q.-M. Shao and W.-X. Zhou. (2016). Cramér-type moderate deviations for Studentized two-sample U -statistics with applications. *The Annals of Statistics* **44** 1931–1956. DOI:10.1214/15-AOS1375.
26. T. T. Cai and W.-X. Zhou. (2016). Matrix completion via max-norm constrained optimization. *Electronic Journal of Statistics* **10**(1) 1493–1525. DOI:10.1214/16-EJS1147.
27. Q.-M. Shao and W.-X. Zhou. (2016). Cramér type moderate deviation theorems for self-normalized processes. *Bernoulli* **22**(4) 2029–2079. DOI:10.3150/15-BEJ719.
28. Q.-M. Shao, K. Zhang and W.-X. Zhou. (2016). Stein’s method for nonlinear statistics: A brief survey and recent progress. *Journal of Statistical Planning and Inference* **168** 68–89. DOI:10.1016/j.jspi.2015.06.008.
29. A. Delaigle and W.-X. Zhou. (2015). Nonparametric and parametric estimators of prevalence from group testing data with aggregated covariates. *Journal of the American Statistical Association* **110**(512) 1785–1796. DOI:10.1080/01621459.2015.1054491.
30. Q.-M. Shao and W.-X. Zhou. (2014). Necessary and sufficient conditions for the asymptotic distributions of coherence of ultra-high dimensional random matrices. *The Annals of Probability* **42**(2) 623–648. DOI:10.1214/13-AOP837.
31. T. T. Cai and W.-X. Zhou. (2013). A max-norm constrained minimization approach to 1-bit matrix completion. *Journal of Machine Learning Research* **14**(78) 3619–3647. jmlr.org.

SOFTWARE

1. **conquer**: convolution smoothed quantile regression.
 - R: cran.r-project.org/web/packages/conquer
 - Python: github.com/WenxinZhou/conquer
2. R package **FarmTest**: factor adjusted robust multiple testing. [CRAN](http://CRAN.R-project.org/package=FarmTest).
3. R package **ILAMM**: nonconvex regularized robust regression via I-LAMM (iterative local adaptive majorize-minimization) algorithm. [R](http://CRAN.R-project.org/package=ILAMM), [Python](https://github.com/WenxinZhou/ILAMM).
4. R package **tfHuber**: tuning-free Huber regression. [GitHub](https://github.com/WenxinZhou/tfHuber).

STUDENT INSTRUCTIONAL ACTIVITIES

Doctoral Students

- Xiaou Pan: In progress, expected to graduate in May 2022
- Zian Wang: In progress, expected to graduate in May 2022

Member in PhD Advancement Committee

- **Statistics**: Andrew Ying (graduated in 2020; Chair: Ery Arias-Castro), Lin Zheng (Chair: Ery Arias-Castro), Yiren Wang (Chair: Dimitris Politis), Rong Huang (Chair: Ery Arias-Castro), Yuqian Zhang (Chair: Jelena Bradic), He Jiang (Chair: Ery Arias-Castro), Linbo Liu (Chair: Danna Zhang)
- **Optimization**: Minxin Zhang (Chair: Philip Gill), Bingni Guo (Chair: Jiawang Nie)

- **Economics:** Haitian Xie (Chair: Graham Elliott)

External Committee Member for PhD Dissertation Proposal

- Peiliang Zhang (Chair: Zhao Ren; Department of Statistics, University of Pittsburgh)

INVITED PRESENTATIONS

- 14th International Conference of the ERCIM WG on Computational and Methodological Statistics (CMStatistics 2021) (virtual). 12/18–12/20, 2021.
- 2021 WNAR Conference (virtual). 06/11–06/16, 2021.
- Statistics Seminar (virtual). Department of Mathematics and Statistics, Washington State University, Pullman, Washington, 03/2021.
- Econometrics Cluster Talk (virtual). Department of Economics, University of York, York, UK, 11/2020.
- Statistics Seminar (virtual). Department of Statistics, Rutgers University, Piscataway, New Jersey, 09/2020.
- Joint Statistics Seminar (virtual). School of Data Science, Fudan University, Shanghai, China, 05/2020.
- Statistics Seminar (virtual). School of Statistics, Southwestern University of Finance and Economics, Chengdu, China, 04/2020.
- Statistics Seminar. School of Mathematics and Statistics, University of Melbourne, Parkville VIC, Australia, 02/2020.
- Statistics Seminar. Research School of Finance, Actuarial Studies & Statistics, Australian National University, Canberra, Australia, 02/2020.
- 2019 International Conference on Data Science. Fudan University, Shanghai, China, 12/2019.
- Statistics Seminar. Department of Statistics, University of California, Davis, California, 10/2019.
- 2019 Joint Statistical Meetings. Denver, Colorado, 07/27–08/01, 2019.
- 2019 IMS–China International Conference on Statistics and Probability. Dalian, China, 07/2019.
- ICSA 2019 Applied Statistics Symposium. Raleigh, North Carolina, 06/2019.
- Statistics Seminar. School of Mathematics and Statistics, University of Melbourne, Parkville VIC, Australia, 11/2018.
- The 5th Institute of Mathematical Statistics Asia Pacific Rim Meeting. Singapore, 06/2018.
- 4th International Society for Non-Parametric Statistics Conference. Salerno, Italy, 06/2018.
- TRIPODS Southwest Summer Conference. Biosphere 2, Oracle, Arizona, 05/2018.

- Departmental Seminar. Department of Statistical Sciences, University of Toronto, Toronto, Canada, 04/2018.
- Statistics Seminar. School of Mathematical Sciences, Zhejiang University, Hangzhou, China, 12/2017.
- Statistics Seminar. The Wang Yanan Institute for Studies in Economics, Xiamen University, Xiamen, China, 12/2017.
- Marshall Statistics Seminar. Department of Data Sciences and Operations, University of Southern California, Los Angeles, California, 11/2017.
- Probability and Statistics Seminar. Department of Mathematics, University of Southern California, Los Angeles, California, 09/2017.
- IMS-China International Conference on Statistics and Probability. Nanning, China, 06/2017.
- 2017 ICSA Applied Statistics Symposium. Chicago, Illinois, 06/2017.
- Statistics Seminar, Institute of Big Data. Fudan University, Shanghai, China, 3/2017.
- The 4th Institute of Mathematical Statistics Asia Pacific Rim Meeting. Hong Kong, 06/2016.
- IMS-China International Conference on Statistics and Probability. Kunming, China, 07/2015.
- Joint 24th ICSA Applied Statistics Symposium and 13th Graybill Conference. Fort Collins, Colorado, 06/2015.
- Workshop on Random Matrices and Their Applications. University of Hong Kong, Hong Kong, 01/2015.
- Australian Statistical Conference in conjunction with the Institute of Mathematical Statistics Annual Meeting. Sydney, Australia, 07/2014.
- The 3rd Institute of Mathematical Statistics Asia Pacific Rim Meeting. Taipei, Taiwan, 06/2014.
- Program on Self-normalized Asymptotic Theory in Probability, Statistics and Econometrics. Institute for Mathematical Sciences, National University of Singapore, Singapore, 05/2014.
- The Ninth ICSA International Conference. Hong Kong, 12/2013.

AWARDS AND GRANTS

- NSF Division of Mathematical Sciences Award (NSF-DMS 2113409, 2021–2024)
- UCSD Hellman Fellowship (2020–2021)
- UCSD General Campus Research/Bridge Grant (2020)
- UCSD General Campus Research/Bridge Grant (2019)
- NSF Division of Mathematical Sciences Award (NSF-DMS 1811376, 2018–2021)

- UCSD General Campus Travel Grant (2018)
- Institute of Mathematical Statistics Travel Award (2014)
- Institute of Mathematical Statistics Laha Travel Award (2012)
- HKUST Overseas Research Awards (2012)
- HKUST Research Travel Grant (2011, 2012)
- HKUST Honorably-Mentioned Teaching Assistant (2011)

EDITORIAL SERVICE

- Associate Editor for *The Annals of Statistics* (2022–Present)
- Associate Editor for *The Annals of Applied Probability* (2022–Present)
- Associate Editor for *Statistics: A Journal of Theoretical and Applied Statistics* (2020–Present)

PROFESSIONAL ACTIVITIES

Reviewers:

Journals – *Annals of Statistics*, *Annals of Probability*, *Journal of the Royal Statistical Society: Series B*, *Journal of the American Statistical Association*, *Journal of Machine Learning Research*, *Journal of Econometrics*, *Journal of Business & Economic Statistics*, *Annales de l'Institut Henri Poincaré*, *Probabilités et Statistiques*, *Biometrika*, *Bayesian Analysis*, *Bernoulli*, *Biostatistics*, *Electronic Journal of Statistics*, *IEEE Transactions on Information Theory*, *IEEE Transactions on Neural Networks and Learning Systems*, *IEEE Signal Processing Letters*, *Machine Learning*, *Statistica Sinica*, *Statistics Surveys*, *Statistics in Medicine*, *Statistics & Probability Letters*, *Statistics and Its Interface*, *Behavior Research Methods*, *Canadian Journal of Statistics*, *Computational Statistics and Data Analysis*, *Journal of Statistical Planning and Inference*, *Journal of Multivariate Analysis*, *Journal of Nonparametric Statistics*, *Methodology and Computing in Applied Probability*, *Metrika*, *ESAIM: Probability and Statistics*, *Random Matrices: Theory and Applications*, *SCIENCE CHINA Mathematics*.

Conferences – *Annual Conference on Neural Information Processing Systems (NeurIPS)*, *International Conference on Machine Learning (ICML)*, *International Conference on Artificial Intelligence and Statistics (AISTATS)*.

Others – *Mathematical Reviews*.

University services: Statistics Seminar organizer, School of Mathematics and Statistics, University of Melbourne, Aug 2014 – Aug 2015.

Members: Institute of Mathematical Statistics, International Chinese Statistical Association.