

Curriculum Vitae

Wang ZHOU

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1 Research Interests

High dimensional statistics; Network data;

2 Education

June 2004 PhD
Hong Kong Univ. of Sci. and Tech.
Dept. of Math.
Advisor: Prof. Bing-Yi Jing

March 1997 MSc
Shanghai Univ. of Fin. and Econ.
Dept. of Statist.

July 1994 BSc
Shanghai Univ. of Fin. and Econ.
Dept. of Statist.

3 Academic appointments

Jan. 2014– Full Professor
Jan. 2009–Dec. 2013 Associate Professor (Tenured)
July 2004–Dec. 2008 Assistant Professor
National Univ. of Singapore

Sept. 2000–June 2004 Teaching assistant (each semester)
Hong Kong Univ. of Sci. and Tech.

March 1997–Aug. 2000 Instructor
Shanghai Univ. of Fin. and Econ.

4 Teaching experience

Courses Taught in Singapore: ST3236, Stochastic Processes I
ST3239, Survey Methodology
ST3240, Multivariate Analysis
ST4232, Nonparametric Statistics
ST4233, Linear Model
ST4238, Stochastic Processes II
ST5221, Probability and Stochastic Processes

Courses taught in HKUST Sampling, Nonparametric Statistics.

Courses taught in Shanghai Probability, Mathematical Statistics

5 Postgraduate students trained

Huang Ying, thesis title: *Principle Component-based Adaptive Neyman Test for Functional data.* (Master in 2005)

Xiao Han, thesis title: *Almost sure limit of the smallest eigenvalue of sample correlation matrix.* (Master in 2006) A paper based on his thesis was published in *Journal of Theoretical probability* in 2010. Now he is an assistant professor in Rutgers University.

Wang Xiaoying, thesis title: *Central limit theorem of linear spectral statistics for large dimensional random matrices.* (PhD in 2009) Two papers based on her thesis were published in *Bernoulli* (2010) and *Electronic Journal of Probability* (2009) respectively.

Wang Xiping, thesis title: *Empirical likelihood with applications.* (PhD in 2010) Two papers based on his thesis were published by *Australian and New Zealand Journal of Statistics* (2012) and *Sankhya - The Indian Journal of Statistics*(2012) respectively.

6 Committees

Department level

July 2005–June 2007	Member of the graduate program committee
Jan. 2006–June 2007	Member of the research committee
July 2008–June 2009	Member of the graduate program committee
July 2009–June 2010	Deputy chair of the graduate program committee
July 2010–June 2011	Co-Chair of the graduate program committee Member of the graduate curriculum committee
July 2011–June 2012	Chair of the search committee (tenure-track Assistant and Associate Professors) Member of the teaching excellence committee
July 2012–June 2016	Member of the search committee (tenured Associate and full Professors, SSH Professors)
July 2014–June 2017	Member of the teaching excellence committee
July 2016–June 2017	Co-Chair of the search committee
Faculty level	
July 2010–Dec. 2010	Member of the faculty graduate program executive committee
Oct. 2011–June 2013	Member of the faculty research committee
July 2012–2016	Member of the faculty promotion and tenure committee (Junior)

7 Grants

1. Statistical inference on big matrix. MOE Tier 2 grant. 2016-2019
2. Random matrix theory and its applications (joint with Pan Guangming). MOE Tier 2 grant. 2011-2014
3. Convergence rate of empirical spectral distributions. MOE Tier 1 grant. 2011-2014
4. Nonparametric estimate of spectral density functions of random matrices. MOE Tier 1 grant. 2010-2013
5. Edgeworth Expansion for Studentized Compound Poisson Sum Under Minimal Conditions. MOE Tier 1 grant. 2009-2012
6. Perturbed loop erased random walk. MOE Tier 1 grant. MOE Tier 1 grant. 2008-2011
7. Random matrices and Stochastic Loewner Evolution. MOE Tier 1 grant. 2007-2010
8. SLE and limit theorems in probability and statistics. MOE Tier 1 grant. 2005-2008

8 Professional Activities

April 13, 2010–May 31, 2010	Visiting Univ. of Geneve working with Stanislav Smirnov
Oct. 1, 2007–Oct. 31, 2007	Visiting Microsoft Research working with Oded Schramm
Aug. 8, 2003–Aug. 22, 2003	Visiting Fellow at National Univ. of Singapore working with Qi-Man Shao
July 28, 2003–Aug. 1, 2003	Visiting Fellow at Standford Univ. working with Bradley Efron
Mar. 13, 2003–Mar. 26, 2003	Visiting Fellow at National Univ. of Singapore working with Qi-Man Shao
Jan. 7, 2003–Jan. 28, 2003	Visiting Fellow at National Univ. of Singapore working with Qi-Man Shao
Oct. 10, 2002–Oct. 23, 2002	Visiting Fellow at National Univ. of Singapore working with Qi-Man Shao
Sept. 1, 2002–Sept. 7, 2002	Visiting Fellow at CWI working with R. Helmers
Aug. 1, 2002–Aug. 31, 2002	Visiting Fellow at Humboldt University working with Prof. W. Haerdle supported by DFG Fellowship
July 1, 2002–July 31, 2002	Visiting Fellow at Univ. of Bielefeld working with Prof. F. Goetze supported by DFG Fellowship

9 Invited Talks

- July 2013 The logarithmic law of random determinant
IMS-China International Conference on Stat. and Prob.
- Nov. 2011 Smoothed empirical spectral distribution of sample covariance matrices
plenary speaker in the 7th probability limit and statistical large
sample theory conference of China
- May 2011 Kernel estimator of M-P type distributions and smoothed quantile
of the MP law. High dimensional statistics conference, NTU
- July 2009 On normal approximations to U -statistics
IMS-China International Conference on Stat. and Prob.
- July 2008 Boundary proximity of SLE.
7th World Congress in Probability and Statistics NUS
- June 2006 An Introduction to Stochastic Loewner Evolution
International Conference on Asymptotic Theory in
Probability and Statistics, Zhejiang University
- July 2005 Limit of Empirical Spectral Distributions of Large Sample
Covariance Matrices, CSPS/IMS Joint Meeting,
Peking University
- March 2005 A note on saddlepoint approximations in resampling
methods, Asymptotics and Nonparametrics Workshop,
University of Sydney
- Nov 2004 Asymptotic distributions of largest entries of correlation
matrices, Hong Kong Univ. of Sci. & Tech.
- July 2004 Self-normalized moderate deviations and LIL for Centered
Feller Class, 6th ICSA International conference, Singapore
- July 2002 Saddlepoint approximation with no moment conditions,
Dept. of Math., Univ. of Bielefeld, Bielefeld, Germany
- Sept. 2002 A short course in CWI, Amsterdam, the Netherlands.
- Jan. 2003 Empirical likelihood confidence regions for comparison
distributions and ROC curves,
Dept. of Statistics and Applied Probability,
National Univ. of Singapore

10 Editorial Service

Associate editor of *Open Journal of Statistics*, 2011-

Associate editor of *Random Matrices Theory and Applications*, 2012-July 2017

Editor-in-Chief of *Random Matrices Theory and Applications*, August 2017-

11 Award and Membership

Nov. 2012 Faculty of Science's *Outstanding Scientist Award*, NUS

March 2012 Elected Member of International Statistical Institute

Dec. 2007 Faculty of Science's *Young Scientist Award*, NUS

12 Published and Accepted Papers

1. Chen, X., Ma, X. J. and Zhou, W. (2019) Kernel density regression. Accepted by *Journal of Statistical Planning and Inference*.

2. Hu, J., Li, W. M. and Zhou, W. (2019) Central limit theorem for mutual information of large MIMO systems with elliptically correlated channels. Accepted by *IEEE Transactions on Information Theory*.
3. Liu, Y., Liu, Z. and Zhou, W. (2019) A test for equality of two distributions via integrating characteristic functions. *Statistica Sinica*. **29**, 1779-1801
4. Kong, X. B, Liu, Z. and Zhou, W. (2019) A rank test for the number of factors with high-frequency data. *Journal of Econometrics*. **211**, 439-460.
5. Yang, G., Yang, S. and Zhou, W. (2019) Adjacency matrix comparison for stochastic block models. *Random Matrices: Theory and Applications*. **8**, 1950010
6. Lan, S. Y. and Zhou, W. (2019) Random conformal welding for finitely connected regions. *Journal of Theoretical Probability*. **32**, 659-683.
7. Bao, Z. G., Hu, J., Pan, G. M. and Zhou, W. (2019) Canonical correlation coefficients of high-dimensional Gaussian vectors: finite rank case. *Annals of Statistics*. **47**, 612-640.
8. Hu, J., Li, W. M., Liu, Z. and Zhou, W. (2019) High-dimensional covariance matrices in elliptical distributions with application to spherical test. *Annals of Statistics*. **47**, 527-555.
9. Cheng, C. H., Liu, Y., Liu, Z. and Zhou, W. (2018) Balanced augmented jackknife empirical likelihood for two sample U-statistics. *Science China Mathematics*. **61**, 1129-1138.
10. Kong, X. B, Xu, S. J. and Zhou, W. (2018) Bootstrapping volatility functionals: a local and non-parametric perspective. *Biometrika*. **105**, 463-469.
11. Pan, G. M., Wang, S. C. and Zhou, W. (2017) Limit theorems for linear spectrum statistics of orthogonal polynomial ensembles and their applications in random matrix theory. *Journal of Mathematical Physics*. **58**, 103301.
12. Jing, B. Y., Tsao, M. and Zhou, W. (2017) Transforming the empirical likelihood towards better accuracy. *The Canadian Journal of Statistics*. **45**, 340-352.
13. Kong, X. B, Liu, Z., Zhao, P. and Zhou, W. (2017) SURE estimates under dependence and heteroscedasticity. *Journal of Multivariate Analysis*. **161**, 1-11.
14. Bao, Z. G., Hu, J., Pan, G. M. and Zhou, W. (2017) Test of independence for high-dimensional random vectors based on freeness in block correlation matrices. *Electronic Journal of Statistics*. **11**, 1527-1548.
15. Kong, X. B, Liu, Z., Yao, Y. and Zhou, W. (2017) Sure screening by ranking the canonical correlations. *Test*. **26**, 46-70.
16. Jin, B. S., Pan, G. M., Yang, Q. and Zhou, W. (2016) On high-dimensional change point problem. *Science China Mathematics*. **59**, 2355-2378.
17. Jing, B-Y., Li Z. P., Pan, G. M. and Zhou, W. (2016) On SURE-type double shrinkage estimation. *Journal of the American Statistical Association*. **111**, 1696-1704.
18. Pan, G. M., Wang, S. C. and Zhou, W. (2016) Fluctuations of linear eigenvalues statistics for Wigner matrices: edge case. *Journal of Statistical Physics*. **165**, 507-520.

19. Li, Z. P., Xu J. and Zhou, W. (2016) On nonsmooth estimating functions via jackknife empirical likelihood. *Scandinavian Journal of Statistics*. **43**, 49-69.
20. Jing, B-Y., Wang, Q. Y. and Zhou, W. (2015) Cramér type moderate deviation for studentized compound Poisson sum. *Journal of Theoretical Probability*. **28**, 1556-1570.
21. Liu, Z., Xia, X. C. and Zhou, W. (2015) A test for equality of two distributions via jackknife empirical likelihood and characteristic functions. *Computational Statistics and Data Analysis*. **92**, 97-114.
22. Bao, Z. G., Lin, L. C., Pan, G. M. and Zhou, W. (2015) Spectral statistics of large dimensional Spearman's rank correlation matrix and its application. *Annals of Statistics*. **43**, 2588-2623. arXiv:1312.5119.
23. Chen, B. B., Pan, G. M., Yang, Q. and Zhou, W. (2015) Large dimensional empirical likelihood. *Statistica Sinica*. **25**, 1659-1677.
24. Bao, Z. G., Pan, G. M. and Zhou, W. (2015) Asymptotic mutual information statistics of MIMO channels and CLT of sample covariance matrices. *IEEE Transactions on Information Theory*. **61**, 3413-3426.
25. Bao, Z. G., Pan, G. M. and Zhou, W. (2015) The logarithmic law of random determinant. *Bernoulli*. **21**, 1600-1628. arXiv:1208.5823
26. Bai, Z. D., Hu, J., Pan, G. M., and Zhou, W. (2015) Convergence of the empirical spectral distribution function of Beta matrices. *Bernoulli*. **21**, 1538-1574.
27. Bao, Z. G., Pan, G. M. and Zhou, W. (2015) Universality for the largest eigenvalue of sample covariance matrices with general population. *Annals of Statistics*. **43**, 382-421. arXiv: 1304.5690
28. Jing, B-Y, Kong, X. B. and Zhou, W. (2014) FDR control in multiple testing under non-normality. *Statistica Sinica*. **24**, 1879-1899.
29. Li, Z. P., Lin, Y. Y., Zhou, G. L. and Zhou, W. (2014) Empirical likelihood for least absolute relative error regression. *Test*. **23**, 86-99.
30. Bao, Z. G., Pan, G. M. and Zhou, W. (2014) Universality for a global property of the eigenvectors of Wigner matrices. *Journal of Mathematical Physics*. **55**, 023303.
31. Pan, G. M., Wang X. P. and Zhou, W. (2013) Nonparametric statistical inference for $P(X < Y < Z)$. *Sankhya - The Indian Journal of Statistics*. **75-A**, 118-138.
32. Lawler, G. F. and Zhou, W. (2013) SLE curves and natural parametrization. *Annals of Probability*. **41**, 1556-1584. arXiv:1006.4936
33. Zhou, W. (2013) New estimators of spectral distributions of Wigner matrices. *Journal of Mathematical Physics*. **54**, 033503. arXiv:1107.2714.
34. Bao, Z. G., Pan, G. M. and Zhou, W. (2013) Central limit theorem for partial linear eigenvalue statistics of random matrices. *Journal of Statistical Physics*. **150**, 88-129. arXiv:1206.0508
35. Li Z. P., Wang X. P. and Zhou, W. (2012) Empirical Likelihood for Compound Poisson Process. *Australian & New Zealand Journal of Statistics*. **54**, 463-474.

36. Jing, B-Y, Liang, H. Y. and Zhou, W. (2012) Self-normalized moderate deviations for independent random variables. *Science China Mathematics*. **55**, 2297-2315.
37. Bao, Z. G., Pan, G. M., and Zhou, W. (2012) Tracy-Widom law for the extreme eigenvalues of sample correlation matrices. *Electronic Journal of Probability*. **17**, No 88. arXiv:1110.5208
38. Jing, B-Y, Li, Z.P., Qin, J. and Zhou, W. (2012) Jackknife empirical likelihood method for case-control studies with gene-environment independence on controls. *Statistics and Its Interface*. **5**, 293-302.
39. Zhou, W. (2012) Discussion on “Probabilistic index models” by Olivier Thas, Jan De Neve, Lieven Clement and Jean-Pierre Ottoy. *Journal of the Royal Statistical Society, Series B*. **74**, 666.
40. Bai, Z. D., Hu, J. and Zhou, W. (2012) Convergence rates to the Marcenko-Pastur type distribution. *Stochastic Processes and their Applications*. **122**, 68-92.
41. Bai, Z. D., Hu, J., Pan, G. M., and Zhou, W. (2011) A note on rate of convergence in probability to semicircular law. *Electronic Journal of Probability*. **16**, 2439-2451.
42. Pan, G. M. and Zhou, W. (2011) Central limit theorem for Hotelling’s T^2 statistic under large dimension. *Annals of Applied Probability*. **21**, 1860-1910. arXiv:0802.0082
43. Zhou, G. L. and Zhou, W. (2010) Saddlepoint approximation for studentized compound Poisson sum with no moment conditions in audit sampling. *Science China Mathematics*. **53**, 3131-3138.
44. Jing, B.-Y., Pan, G. M., Shao, Q. M. and Zhou, W. (2010) Nonparametric estimate of spectral density functions of sample covariance matrices: A first step. *Annals of Statistics*. **38**, 3724-3750.
45. Bai, Z. D., Wang, X. Y. and Zhou, W. (2010) Functional CLT for sample covariance matrices. *Bernoulli*. **16**, 1086-1113.
46. Xiao, H. and Zhou, W. (2010) Almost sure limit of the smallest eigenvalue of some sample correlation matrices. *Journal of Theoretical Probability*. **23**, 1-20.
47. Pan, G. M. and Zhou, W. (2010) Circular law, extreme singular values and potential theory. *Journal of Multivariate Analysis*. **101**, 645-656. arXiv:0705.3773
48. Schramm, O. and Zhou, W. (2010) Boundary proximity of SLE. *Probability Theory and Related Fields*. **146**, 435-450. arXiv:0711.3350.
49. Bentkus, V, Jing, B.-Y. and Zhou, W. (2009) On normal approximations to U -statistics. *Annals of Probability*. **37**, 2174-2199.
50. Bai, Z. D., Wang, X. Y. and Zhou, W. (2009) CLT for linear spectral statistics of Wigner matrices. *Electronic Journal of Probability*. **14**, 2391-2417.
51. Jing, B.-Y., Yuan, J. Q. and Zhou, W. (2009) Jackknife empirical likelihood. *Journal of the American Statistical Association*. **104**, 1224-1232.
52. Zhu, J. Z. and Zhou W. (2009) Saddlepoint approximation for sample quantiles with some applications. *Communications in Statistics-Theory and Methods*. **38**, 2241-2250.

53. Horváth, L., Horváth, Z. and Zhou, W. (2008) Asymptotic properties of nonparametric frontier estimators. *Econometric Theory*. **24**, 1607-1627.
54. Jing, B.-Y., Shao, Q. M. and Zhou, W. (2008) Towards a universal self-normalized moderate deviation. *Transactions of the American Mathematical Society*. **360**, 4263-4285.
55. Pan, G. M. and Zhou, W. (2008) Central limit theorem for signal-to-interference ratio of reduced rank linear receiver. *Annals of Applied Probability*. **18**, 1232-1270.
56. Bai, Z. D. and Zhou, W. (2008) Large sample covariance matrices without independence structure in columns. *Statistica Sinica*. **18**, 425-442.
57. Horváth, L., Horváth, Z. and Zhou W. (2008) Confidence bands for ROC curves. *Journal of Statistical planning and inference*. **138**, 1894-1904.
58. Jing B.-Y., Yuan J. Q. and Zhou W. (2008) Empirical likelihood for non-degenerate U -statistics. *Statistics & Probability Letters*. **78**, 599-607.
59. Zhou, W. (2008) Statistical inference for $P(X < Y)$. *Statistics in Medicine*. **27**, 257-279.
60. Zhou, W. (2007) Asymptotic distribution of the largest off-diagonal entry of correlation matrices. *Transactions of the American Mathematical Society*. **359**, 5345-5363.
61. Wang, X. L. and Zhou, W. (2007) Uniformly bounded components of normality. *Mathematical Proceedings Of The Cambridge Philosophical Society*. **143**, 85-101.
62. Pan, G. M., Guo, M. H. and Zhou, W. (2007) Asymptotic distributions of the signal-to-interference ratios of LMMSE detection in multiuser communications. *Annals of Applied Probability*. **17**, 181-206.
63. Bentkus, V., Jing, B.-Y., Shao, Q. M. and Zhou, W. (2007) Limiting distributions of non-central t -statistic and their applications to the power of t -tests under non-normality. *Bernoulli*. **13**, 346-364.
64. Zhou, W. and Jing, B.-Y. (2006) Tail probability approximations for Student's t -statistics. *Probability Theory and Related Fields*. **136**, 541-559.
65. Jing, B.-Y. and Zhou, W. (2005) A note on Edgeworth expansions for U -statistics under minimal conditions. *Lithuanian Math. J*. **45**, 353-358.
66. Jing, B.-Y., Shao, Q. M. and Zhou, W. (2004) Saddlepoint approximation for Student's t -statistic with no moment conditions. *Annals of Statistics*. **32**, 2679-2711.
67. Helmers, R., Jing, B.-Y., Qin, G. S. and Zhou, W. (2004). Saddlepoint approximations to the trimmed mean. *Bernoulli*. **10**, 465-501.
68. Wang, X. M. and Zhou, W. (2004). Bootstrap approximation to the distribution of M-estimates in a linear model. *Acta Mathematica Sinica, English Series*. **20**, 93-104.
69. Claeskens, G., Jing, B.-Y., Peng, L. and Zhou, W. (2003). Empirical likelihood confidence regions for comparison distributions and ROC curves. *Canad. J. Statist.* **31**, 173-190.
70. Zhou, W. and Jing, B.-Y. (2003). Adjusted empirical likelihood method for the quantiles. *Annals of the Institute of Statistical Mathematics*. **55**, 689-703.

71. Zhou, W. and Jing, B.-Y. (2003). Smoothed empirical likelihood confidence intervals for the difference of quantiles. *Statistica Sinica*. **13**, 83-95.
72. Wang, X. M. and Zhou, W. (2000). Exponential bounds of mean error for estimates of low dimensional component in additive models. *Applied Mathematics-A Journal of Chinese Universities*. **3**, 353-358.