Harrison H. Zhou

Department of Statistics and Data Science
Yale University, New Haven, CT 06520-8290
Phone: (203) 432-0643 (O), Fax: (203) 432-0633
Email: huibin.zhou@yale.edu
http://www.stat.yale.edu/people/harrisonzhou.html

Positions

2017/7 -2021/6	**Yale University** **Chair, Department of Statistics and Data Science**	**New Haven, CT**
2012/7 -2017/6	**Yale University** **Chair, Department of Statistics**	**New Haven, CT**
2012/1 -2012/6	**Yale University** **Acting Chair, Department of Statistics**	**New Haven, CT**
2010/7 -	**Yale University** **Professor**	**New Haven, CT**
2009/7 -2010/6	**Yale University** **Associate Professor**	**New Haven, CT**
2004/7 -2009/6	**Yale University** **Assistant Professor**	**New Haven, CT**

Education

1998/7-2004/6	**Cornell University** **Ph.D.** in Mathematics, Aug 2004.	**Ithaca, NY**

Research Interests

- Le Cam theory
- Analysis of iterative algorithms - Lloyd, EM, Variational inference, Gibbs sampler
- Covariance matrix estimation
- Graphical model
- Bayesian nonparametrics
- Network analysis
- Spare CCA and PCA
- Shrinkage estimation and model selection
- Function (wavelet) estimation
- Multiple comparisons
- Functional data analysis
- Bioinformatics

Honors and Awards

- **Editor in Chief**, Annals of Statistics, 2025-2027
- **Member of the Connecticut Academy of Science and Engineering** for fundamental and impactful contributions to modern statistical decision theory in large covariance matrices estimation, statistical network analysis, and nonparametrics estimation; for dedication and passion for teaching, mentoring, and professional service; and for outstanding leadership in statistics and data science, 2024.
- **Henry Ford II Professor of Statistics and Data Science,** Yale University, 2018/6 -.
- **Lex Hixon '63 Prize** for Teaching Excellence in the Social Sciences at Yale, 2018**.**
- **Elected member,** International Statistical Institute, 2014.
- **Fellow,** Institute of Mathematical Statistics, 2014. *For influential work in Le Cam's theory, nonparametric function estimation, and high-dimensional statistical inference, in particular: optimal estimation of large covariance and precision matrices.*
- **IMS Medallion Lecture,** Institute of Mathematical Statistics, 2014.
- **Tweedie Award**, Institute of Mathematical Statistics, 2010. *For innovative and significant contributions to the theory and methods of nonparametric function estimation; for outstanding contributions to high-dimensional statistical inference, including estimation of large covariance matrices and sparse signals.*
- **Noether Young Researcher Scholar Award,** American Statistical Association, 2009. *For outstanding early career contributions to nonparametric statistics.*
- **National Science Foundation, FRG Grant,** *Focused Research Group--Statistical Inference for High-Dimensional Data: Theory, Methodology and Applications, 2009/9-2013/3. Jointly with T. Tony Cai and Tianxi Cai*
- **National Science Foundation CAREER Award**, *Asymptotic Decision Theory and Its Applications*, 2007/5 -- 2012/10.
- **Liu Memorial Award**, May 2001. Awarded to the best student researcher of Chinese descent at Cornell. Established in the late 1960s. First mathematics graduate student to receive this honor.

Papers and Manuscripts

Published/Accepted

- Leave-one-out Singular Subspace Perturbation Analysis for Spectral Clustering (with A. Zhang)

  Annals of Statistics (2024)

- Rates of estimation for high-dimensional multi-reference alignment (with Z. Dou and Z. Fan,)

  Annals of Statistics (2024)

- Optimal estimation of high-dimensional Gaussian mixtures (with N. Doss, Y. Wu, P. Yang)

  Annals of Statistics (2023)

- Randomly initialized EM algorithm for two-component Gaussian mixture achieves near optimality in O(sqrt{n}) iterations (with Y. Wu)

  Mathematical Statistics and Learning (2022).

- Optimality of Spectral Clustering for Gaussian Mixture Model (with M. Loffler, and Y. Zhang)

Annals of Statistics (2021).

- Testing for Balance in Social Networks (with D. Feng, D. Stafford, and N. A. Christakis)

  Journal of the American Statistical Association, 2020.

- Theoretical and Computational Guarantees of Mean Field Variational Inference for Community Detection (with A. Zhang)

  Annals of Statistics. Volume 48, Number 5, 2575-2598, 2020.

- A General Framework for Bayes Structured Linear Models (with C. Gao and A. W. van der Vaart).

  Annals of Statistics. Volume 48, Number 5, 2848-2878, 2020.

- Structured Matrix Estimation and Completion (with O. Klopp, Y. Lu, and A. Tsybakov)

  Bernoulli. Volume 25, Number 4B, 3883-3911, 2019.

- Sparse CCA via Precision Adjusted Iterative Thresholding (with M. Chen, C. Gao, and Z. Ren).
  Proceeding of International Congress of Chinese Mathematicians. 2018.

- Community Detection in Degree-Corrected Block Models (with C. Gao, Z. Ma, and A. Zhang).
  Annals of Statistics. Volume **46**, Number 5, 2153-2185, 2018

- Adaptive functional linear regression via functional principal component analysis and block thresholding (with T. Cai, and L. Zhang).
  Statistica Sinica. A Special Issue in the Memory of Professor Peter Hall. 28, 2455-2468 (2018).

- Discussion on "Minimax Optimal Procedures for Locally Private Estimation" (with A. Zhang)
  Journal of the American Statistical Association. 113, 2018.

- Achieving Optimal Misclassication Proportion in Stochastic Block Model (with C. Gao, Z. Ma, and A. Zhang).

  Journal of Machine Learning Research, 18(60):1−45, 2017.

- Sparse CCA: Adaptive estimation and computational barriers (with C. Gao and Z. Ma).
  Annals of Statistics. Volume 45, Number 5, 2074-2101, 2017

- Estimating sparse precision matrices (with N. Padmanabhan, M. White, and R. O'Connell).

  Monthly Notices of the Royal Astronomical Society, 460, 1567–1576, 2016.

- *Optimal Estimation and Completion of Matrices with Biclustering Structures (with C. Gao, Y. Lu, Z. Ma).*
  Journal of Machine Learning Research, 17, 1-29, 2016.

- Minimax Rates of Community Detection in Stochastic Block Models (with A. Zhang).

  Annals of Statistics. Volume 44, Number 5, 2252-2280, 2016.

- Optimal Large-scale Quantum State Tomography With Pauli Measurements (with T. Cai, D. Kim, Y. Wang, M. Yuan).

  Annals of Statistics. Volume 44, Number 2, 682-712, 2016

- Rate exact Bayesian adaptation with modified block priors (with C. Gao)

  Annals of Statistics, 44, 318-345, 2016.

- Estimating Structured High-Dimensional Covariance and Precision Matrices: Optimal Rates and Adaptive Estimation (with T. Cai and R. Zhao)

  Electronic Journal of Statistics with Discussions, Volume 10, Number 1, 1-59, 2016

- Rate-optimal Graphon Estimation (with C. Gao and Y. Lu)

  Annals of Statistics, 43, 2624-2652, 2015.

- *Minimax Estimation in Sparse Canonical Correlation Analysis* (with C. Gao, Z. Ma, and Z. Ren).

  Annals of Statistics, 43, 2168-2197, 2015.

- Bernstein-von Mises Theorems for Functionals of Covariance Matrix (with C. Gao)

  Electronic Journal of Statistics. To appear.

- Tight Minimax Rates for Manifold Estimation under Hausdorff Loss (with A. Kim)

  Electronic Journal of Statistics, 9, 1562-1582, 2015.

- Asymptotically Normal and Efficient Estimation of Covariate-Adjusted Gaussian Graphical Model (with M. Chen, Z. Ren and H. Zhao).

  Journal of the American Statistical Association. To appear.

- Law of Log Determinant of Sample Covariance Matrix and Optimal Estimation of Differential Entropy for High-Dimensional Gaussian Distributions (with T. Cai and T. Liang).

  Journal of Multivariate Analysis, 137, 161–172, 2015.

- Asymptotic Normality and Optimalities in Estimation of Large Gaussian Graphical Model (with Z. Ren, T. Sun and C. Zhang).

  Annals of Statistics, 43, 991-1026, 2015.
- Rate-optimal Posterior Concentration for Sparse PCA (with C. Gao)

  Annals of Statistics, 43, 785-818, 2015.

- Estimating Sparse Precision Matrix: Optimal Rates of Convergence and Adaptive Estimation (with T. Cai and W. Liu).

  Annals of Statistics. To appear.

- Quantile Coupling Inequalities and Their Applications (with D. Mason).

  Probability Survey, 9, 439-479, 2012.

- Optimal Sparse Volatility Matrix Estimation for High Dimensional Ito Processes With Measurement Errors (with M. Tao and Y. Wang).

  Annals of Statistics, 41, 1816-1864, 2013.

- Discussion of "Latent Variable Graphical Model Selection Via Convex Optimization" (with Z. Ren).

  Annals of Statistics, 40, 1989-1996, 2012.

- Optimal Rates of Convergence for Sparse Covariance Matrix Estimation (with T. Cai).

  Annals of Statistics, 40, 2389-2420, 2012.

- Functional Regression for General Exponential Families (with W. Dou, D. Pollard).

Annals of Statistics, 40, 2421-2451, 2012.

- Model Selection and Sharp Asymptotic Minimaxity (with Z. Wu).

  Probability Theory and Related Fields, 156, 165-191, 2013.

- Optimal Rates of Convergence for Estimating Toeplitz Covariance Matrices (with T. Cai and Z. Ren).

  Probability Theory and Related Fields, 156, 101-143, 2013.

- Minimax Estimation of Large Covariance Matrices under ℓ_{1}-Norm (with T. Cai).

  Statistica Sinica with Discussions, 22, 1319-1378, 2012.

- Nonparametric Regression in Natural Exponential Families (with T. Cai).

  James O. Berger, T. Tony Cai and Iain M. Johnstone, eds., Borrowing Strength: Theory Powering Applications – A Festschrift for Lawrence D. Brown (Beachwood, Ohio, USA: Institute of Mathematical Statistics), 199-215, 2010

- False Discovery Rate Control with Groups (with J. Hu and H. Zhao).

  Journal of the American Statistical Association, 105, 1215-1227, 2010.

- Nonparametric Regression in Exponential Families (with L. Brown and T. Cai).

  Annals of Statistics, 38, 2005-2046, 2010.

- Optimal Rates of Convergence for Covariance Matrix Estimation (with T. Cai and C. Zhang).

  Annals of Statistics, 38, 2118-2144, 2010.

- Asymptotic Equivalence of Spectral Density Estimation and Gaussian White Noise (with G. Golubev and M. Nussbaum).

  Annals of Statistics, 38, 181-214, 2010.

- Asymptotic Equivalence and Adaptive Estimation for Robust Nonparametric Regression (with T. Cai).

  Annals of Statistics, 37, 3204-3235, 2009

- Robust Nonparametric Estimation via Wavelet Median Regression (with L. Brown and T. Cai).

  Annals of Statistics, 36, 2055-2084, 2008.

- The Root-unroot Algorithm for Density Estimation as Implemented via Wavelet Block Thresholding (with L. Brown, T. Cai, R. Zhang, and L. Zhao).

  Probability Theory and Related Fields, 146, 401-433, 2010

- A Data-Driven Block Thresholding Approach to Wavelet Estimation (with T. Cai).

  Annals of Statistics, 37, 569–595, 2009.

- Discussion of ``Sure independence screening for ultra-high dimensional feature space'' by Fan and Lv (with X. Lin).

  Journal of the Royal Statistical Society, Series B, 70, 903-904, 2008.

- A Complement to Le Cam's Theorem (with M. Low).

  Annals of Statistics, 35, 1146-1165, 2007.

- Minimax Estimation with Thresholding and its Application to Wavelet Analysis (with J. Hwang).

  Annals of Statistics, 33, 101-125, 2005.

Submitted/Revised

- From Optimal Score Matching to Optimal Sampling (with Z. Dou, S. Kotekal, Z. Xu)

- Statistical and Computational Guarantees of Lloyd's Algorithm and its Variants (with Y. Lu).

  Under revision for the Annals of Statistics.

Ph.D. Dissertation

- Minimax Estimation with Thresholding and Asymptotic Equivalence for Gaussian Variance Regression. Advisors: J. T. Gene Hwang and Michael Nussbaum.

Professional Service

- COPSS President's Award Committee, 2024-2027
- Chair of IMS Nomination Committee to select the IMS President and Council Members, 2022-2023
- IMS Council Member, 2022-2025
- IMS Program Chair for Invited Talks at JSM 2020
- Associate Editor, Harvard Data Science Review, 2019-
- Associate Editor, *Bernoulli, 2013–.*
- Associate Editor, *Annals of Statistics, 2010–2018.*
- Associate Editor, *Statistical Science, 2017–2020.*
- Associate Editor, *Journal of Nonparametric Statistics, 2011 –2017.*
- Associate Editor, *STAT, 2013–2015.*
- Co-Guest Editor, a special issue of *Statistical Science*, *Network Analysis and Applications*, 2017-2018.
- Co-Guest Editor, a special issue of *Statistics and Its Interface*, for the second IMS-China International Conference, 2009-2010.
- Associate Editor, a special issue of *Journal of Nonparametric Statistics*, 2008.
- Chair of the IMS Committee to select Editors-in-chief for all IMS journals (including Annals of Statistics, Annals of Probability etc.), 2015-2018.
- Member of the IMS Committee to select Editors-in-chief for all IMS journals (including Annals of Statistics, Annals of Probability etc.), 2010-2013.

- External review committee, Maryland math department, Oct 24-25, 2024
- External review committee, Harvard statistics department, March 21-22, 2022
- Review Panels, National Science Foundation.
- Review Panel, Department of Veterans Affairs.
- External review, GSU 2014 Academic Program Review for the College of Arts and Science/ Mathematics & Statistics Department on April 14-15, 2014.
- Member of International Advisory Committee for the Discipline of Statistics, Shanghai Jiao Tong University.

- Member of the Scientific Committee, International Symposium on Nonparametric Statistics June 25-29, 2024, Braga, Portugal.
- Member of the program committee, *Non-convex optimization and deep learning*, Jan 27-30, 2019, MIT, Boston.
- Member of the program committee, *Theoretical Foundation of Deep Learning*, Oct 8-10, 2018, Georgia Tech, Atlanta.
- Co-Organizer of a workshop, *Matrix Estimation Meets Statistical Network Analysis: Extracting low-dimensional structures in high dimension,* June 17-23, 2018, Oberwolfach, Germany. Jointly with Florentina Bunea, Angelika Rohde, and Patrick Wolfe.
- Co-Chair of the program committee of a workshop, *The 10th anniversary on the establishment of Center for Statistical Research,* June 24-27, 2015, CAS, Beijing. Jointly with Jianqing Fan.
- Co-Organizer of a workshop, *Empirical Process and Statistical Decision Theory*, May 7-9, 2015, Yale. Jointly with Sahand Negahban.
- Co-Organizer of a summer school, June 22 – June 25, 2014, and a workshop on June 26, 2014, CAS, Beijing, China. Jointly with Jianqing Fan.
- Co-Organizer of a workshop, *The Seventh International Conference on Frontiers of Statistics*, June 28 – 29, 2013, CAS, Beijing, China. Jointly with Jianqing Fan and Tony Cai.
- Co-Organizer of a summer school, June 22 – June 27, 2013, CAS, Beijing, China. Jointly with Jianqing Fan and Tony Cai.
- Co-Organizer of a workshop, *NSF Workshop for High-Dimensional Data: Theory, Methodology and Applications*, May 31 – June 2, 2012, (http://euler.stat.yale.edu/Conferences/nsfWorkshop/index.html),Yale. Jointly with Tony Cai and Tianxi Cai.
- Co-Organizer of a workshop, *NSF Workshop on High Dimensional Data*, May 2011 (http://people.hsph.harvard.edu/~linli/workshop/index.html), Nantucket. Jointly with Tony Cai and Tianxi Cai.
- Co-Chair of the organizing committee, *International Conference on Statistics and Society,* July 2010 (http://stat.yale.edu/Conferences/ICSS2010/index.html), China.
- Organizer of a workshop, *Innovation and Inventiveness in Statistical Methodologies*, May 2009 (http://www.stat.yale.edu/Conferences/Stats2009/), Yale.

- Member of the program committee, *The Tenth ICSA International Conference, December 19-22, 2016, Shanghai, China.*
- Member of the program committee, *ICSA Applied Statistics Symposium, June 2012, Boston*
- Member of the scientific committee, *The Third IMS-China International Conference, 2011.*
- Member of the scientific committee, *the third IMS-China International Conference, 2011.*
- Member of the scientific committee, *the second IMS-China International Conference, 2009.*

- Organizer of an invited session, *IMS Annual Meeting,* July 29-Aug 3, 2017, Baltimore, Maryland.
- Organizer of an invited session, *International Conference on Data Science,* Dec 16-19, 2016, Shanghai, China.
- Organizer of an invited session, *Nonparametric Workshop,* Oct 6-7, 2016, Ann Arbor, Michigan.
- Organizer of an invited session on "Recent advances in large covariance matrix estimation", *the third IMS-China International Conference, 2011*, Xi'An, China.
- Organizer of an invited session on "Large Covariance Matrices Estimation and Its Applications", *the second IMS-China International Conference, 2009*, Weihai, China.
- Organizer of an invited session on "High dimensional data analysis", *the first IMS-China International Conference, 2008*, Hangzhou, China.

- Organizer of an invited session on "Asymptotic Decision Theory on Nonparametric Estimation", IMS Annual Meeting, 2007, Salk City, Utah, USA.
- Organizer of an invited session on "Shrinkage Theory and its Applications to Bioinformatics and Machine Learning", *ICSA 2006 Applied Statistics Symposium*, USA.

- Referee for *Annals of Statistics, Journal of The American Statistical Association, JRSSB, Bernoulli, Econometric Theory, Probability Theory and Related Fields, J. of Machine Learning Research, J. of Multivariate Analysis, J. of Statistical Planning and Inference, PNAS, Stochastic Processes and their Applications, Statistics and Probability Letter, Statistica Sinica.*

Invited Presentations

- Invited speaker, *Mathematical Statistics in the Information Age*, Viena, Austria, September 2025
- Invited Speaker, *Statistics at a crossroad: a theoretical perspective*, JSM 2025, August 2025
- Invited Speaker, *High-dimensional statistics, applications, and distributional shifts - A workshop in celebration of Peter Bühlmann's 60th birthday*, June 2025
- Distinguished Visiting Scholar, University of Macau, June 2025
- Distinguished Lecture, The Hong Kong Polytechnic University, June 2025
- Brin MRC Distinguished Lecture, March 2025
- Invited participant, *New challenges in high-dimensional statistics*, CIRM, France, Dec 2024
- Invited speaker, *Statistical Inference on Networks and High-Dimensional Data*, Oct 18-20, 2023, Brin Mathematics Research Center
- Invited speaker, *Annals of Statistics Invited Session*, *JSM,* Aug 5-10, 2023, Toronto
- Invited speaker, *The 9th International Forum on Statistics*, Beijing, July 15-16, 2023
- Invited speaker, *The 12th ICSA International Conference*, Hong Kong, July 7-9, 2023
- Invited speaker, a conference in honor of Regina Liu and Cun-Hui Zhang, Rutgers, May 11-13, 2023
- Invited participant, *International Conference on Statistical Foundations of Data Science and their Applications*, Princeton, May 8-10, 2023
- Invited speaker, *International Conference on Statistics and Data Science*, CCNU, Nov 5-6, 2022
- Invited speaker, *Welcome to the 2022 Workshop on Statistical Network Analysis and Beyond*, NYU, Aug 3-5, 2022
- Invited speaker, *Machine Learning Across Disciplines: New Theoretical Developments*, Chicago, June 23, 2022
- Invited speaker, *A Statistics Workshop in Honor of Peter Bickel's 80th Birthday,* Berkeley, June 1-3, 2022
- Invited speaker, *A Statistics Workshop in Honor of Iain Johnstone,* Stanford, May 20-21, 2022
- Invited participant, *Re-thinking High-dimensional Mathematical Statistics*, Oberwolfach, May 16-20, 2022
- Invited speaker, *A Statistics Workshop in Honor of Ed George's 70th Birthday,* U Penn, Dec 10-11, 2021
- Invited speaker, *Joint Statistical Meeting,* July 27 -Aug 1, 2021.
- Invited speaker, *Online Seminars on Mathematical Foundations of Data Science, April 9, 2021*
- Invited participant, *Mathematical Foundations of Machine Learning*, Oberwolfach, March 21-27, 2021
- Invited seminar speaker, Harvard Statistics Department, Nov 23, 2020

- Invited speaker*, Joint Statistical Meeting,* Aug 1 -Aug 6, 2020.
- Invited speaker*, SAMSI Workshop on Deep Learning,* Aug 12-16, 2019, Duke University.
- Invited Speaker, *Joint Statistical Meeting,* July 27 -Aug 1, 2019.
- Invited speaker*, Statistical Conference in Honor of Aad van der Vaart's 60th Birthday,* June 17-21, 2019, Leiden.
- Inaugural PhD students' invited seminar speaker, Stanford Statistics Department, May, 2019
- Invited participant, *Statistical and Computational Aspects of Learning with Complex Structure*, May 5-11 2019, Oberwolfach, Germany.
- Seminar speaker, invited by graduate students, April 30, 2019. Stanford Statistics Department.
- Tutorials, *Meeting in Mathematical Statistics*, Dec 16-21, 2018, Frejus, France.
- Discussant, Larry Brown's Memorial Workshop, Nov 30- Dec 1, 2018, the Wharton School, University of Pennsylvania.
- Lecture series, *Statistical Network Analysis*, July 8-13, Yunnan University.
- Invited participant, *Matrix Estimation Meets Statistical Network Analysis: Extracting low-dimensional structures in high dimension*, June 17-23 2018, Oberwolfach, Germany
- Invited Speaker, May 17-20, 2018, Zhejiang University, China.
- Invited Speaker, *Bridging Mathematical Optimization, Information Theory, and Data Science*, May 14-16, 2018, Princeton.
- Invited participant, *Uncertainty Quantification in Complex, Nonparametric Statistical Models,* April 16-20, 2018, Lorentz Center, Leiden, Netherlands.
- Invited participant, *Data Science Leadership Summit*, March 26, 2018, Oberwolfach, Germany
- Invited participant, *Statistical Inference for Structured High-dimensional Models*, March 11-17, 2018, Oberwolfach, Germany
- Invited speaker, *Meeting in Mathematical Statistics*, December 18 - 22, 2017, CIRM, France
- Plenary speaker, *Statistics meets Friends: From Biophysics to Inverse Problems and back*, Nov. 29 - Dec. 1, 2017, Göttingen, Germany.
- Invited speaker– *Annals of Statistics Invited Session*, *IMS Annual meeting,* July 29-Aug 3, 2017, Baltimore, Maryland.
- Invited speaker, *IMS-China*, June 28-July 1, 2017, Nanning, China.
- Invited speaker, *ICSA Applied Statistics Symposium*, June 25-28, 2017, Chicago.
- Invited speaker, *Statistical Foundations of Uncertainty Quantification for Inverse Problems, June 19-22*, Cambridge University, UK.
- Invited participant, March 2017, Oberwolfach, Germany
- Invited speaker*, The Tenth ICSA International Conference,* December 19-22, 2016, Shanghai, China.
- Invited speaker, *Nonparametric Workshop,* Oct 6-7, 2016, Ann Arbor, Michigan.
- Invited speaker, *Big Data Conference*, August 22-23, 2016, the Center of Mathematical Sciences and Application, Harvard University.
- Invited 45-minutes Lecture, *The 7th International Congress of Chinese Mathematicians,* August 6 -11, 2016, Beijing.
- Invited speaker and participant, *Theoretical Foundations for Statistical Network Analysis*, July 2016, the Isaac Newton Institute, Cambridge, England.
- Invited speaker, *ISNPS 2016,* June 11-16, 2016, Avignon, France.
- Keynote speaker*, Annual Minghui Yu Memorial Student Conference,* April 30, 2016, Statistics department, Columbia University.
- Invited lecture series, Spring 2016, statistics department, the Wharton school, University of Pennsylvania.

- Invited speaker, *Statistical Network and High-Dimensional Data Analysis: Theory and Applications*, Mar 16 - Mar 18, 2016, the Center for Mathematical Sciences in Shanghai, Shanghai, China.
- Invited lecture series, *German Spring School*, March 13 -18, 2016, Brodten, the Bay of Lübeck, Germany.
- Invited participant and speaker, March 2016, Oberwolfach, Germany
- Invited speaker, *Forum on Graphical Model and Network Data Analysis,* Jan 4-8, 2016, Institute for Advanced Study, Center for Statistical Science (CSS), and the Dept. of Mathematics, HKUST.
- Invited speaker, *Cornell Statistics Day*, September 11, 2015, Ithaca, NY.
- Invited speaker, *JSM 2015*, August 8–13, 2015, Seattle, WA.
- Invited speaker, *ISI 2015*, July 26–31, 2015, Rio de Janeiro, Brazil.
- Invited speaker, *Nonparametric and high-dimensional statistics*, July 20, 2015, Heidelberg, Germany
- Invited speaker, ISNPS Meeting 2015, July 12-15, Graz, Austria
- Invited speaker, IMS-China, July 1-4, 2015, Kunming, China
- Lecture series, June 24-25, 2015, Beijing University
- Invited speaker, *The 10th anniversary on the establishment of Center for Statistical Research,* June 24-27, 2015, CAS, Beijing.
- Distinguished University Lecture, June 23, 2015, Central China Normal University.
- Invited speaker, *High-Dimensional Problems and Quantum Physics*, June 6-10, 2015, Paris, France
- Invited speaker, *Structured Nonparametric Modeling*, June 4-6, 2015, Berlin, Germany
- Invited speaker, *Statistics for Complex Systems*, June 1-3, 2015, University of Wisconsin-Madison.
- Invited participant, *Probabilistic Techniques in Modern Statistics*, May 17-23, 2015, Oberwolfach, Germany.
- Invited speaker, *Inference in High Dimensional Regression*, Jan 20-23, 2015, American Institute of Mathematics, Palo Alto, California.
- Keynote speaker, *Statistics and Computational Interface to Big Data,* Jan 2-16, 2015, Institute for Advanced Study, HKUST.
- Invited lecture series on "Structured Covariance and Precision Matrices Estimation", CREST, Paris, Oct 23-Nov 14, 2014.
- Invited participant, *New Horizons in Statistical Decision Theory*, September 7-13, 2014, Oberwolfach, Germany.
- Invited speaker, *International Workshop on Statistics Frontier and Related Topics*, July 14-16, 2014, Xinjing, China.
- IMS Medallion lecture, *IMS Annual meeting*, July 7-11, 2014, Sydney, Australia.
- Invited lecture series at Shanghai Jiaotong University, June 29-July 6, 2014, Shanghai, China.
- Invited speaker, *The Eighth International Conference on Frontiers of Statistics,* June 26, 2014, Shanghai, China.
- Invited speaker, *Frontiers of High-Dimensional Statistic*, June 10-12, 2014, Shanghai, China.
- Invited speaker, *Geometric Aspects of High-dimensional Inference*, March 31-April 2, 2014, SAMSI.
- Invited participant, March 9-15, 2014, Oberwolfach, Germany.
- Invited speaker, *German Open Conference on Probability and Statistics*, March 4-7, 2014. Germany.
- Invited speaker, Van Dantzig Seminar, Feb 28, 2014, Netherlands.

- Invited speaker, *Statistical Inference in Sparse High-dimensional Models: Theoretical and Computational Challenges Workshop*, February 24-26, 2014, SAMSI.
- Invited speaker, *Dimension Reduction and High Dimensional Inference*, Jan 17-18, 2014, Florida.
- Invited speaker, *Frontier Problems in Statistics*, Dec 27-28, 2013, Shanghai.
- Invited speaker, *The Ninth ICSA International Conference*, December 20-23, 2013, Hongkong.
- Invited speaker, *The Second HKUST International Forum on Probability and Statistics*, *HKUST,* December 19, 2013, Hongkong.
- Invited speaker, *International Conference on Frontiers of Probability and Statistics*, December 15-17, 2013, Zhejiang U, Zhejiang, China.
- Invited speaker, JSM, August 2013, Montreal, Canada.
- Invited speaker, *The 4th IMS-China International Conference*, July 1-4, 2013, China.
- Invited speaker, *The Seventh International Conference on Frontiers of Statistics*, June 28 – 29, 2013, CAS, Beijing, China.
- Invited speaker, *Young Mathematician Forum*, June 18-21, 2013, Beijing U, Beijing, China.
- Distinguished Lecturer, March 2013, Mathematics, Georgia State University.
- Invited speaker, *Nonparametric and High-dimensional Statistics,* December 17-21, 2012, France.
- Invited speaker, *The 3rd Princeton Day of Statistics,* October 19, 2012.
- Invited speaker, *High Dimensional Statistics: Advances and Challenges*, August 2012, Singapore.
- Invited speaker, *The Second IMS-Asia Pacific Rim Meeting*, July 23-26, 2012, Japan.
- Invited speaker, *ICSA Applied Statistics Symposium, June 2012, Boston.*
- Invited speaker, June 20-24, 2012, Purdue.
- Invited speaker, *First Conference of the International Society for NonParametric Statistics (ISNPS)*, June 14-20, 2012, Greece.
- Invited speaker, *Conference on Statistical Learning and Data Mining,* June 5-7, 2012, U. Michigan.
- Invited participant, SAMSI LDHD Planning Workshop, May 17, 2012.
- Invited speaker, *Large Scale Statistical Inference and Learning: Challenges and New Directions*, April 28-29, 2012, U. Minnesota.
- Invited participant and speaker, March 2012, Oberwolfach, Germany
- Invited speaker, *The Seventh SJTU Workshop on Natural Sciences: Frontier Problems in Modern Statistics*, Jan 5-6, 2012, China.
- Keynote Speaker, *Information Theory and Shrinkage Estimation*, November 2011, Info-Metrics Institute, American University.
- Invited participant and speaker, October 2011, Oberwolfach, Germany
- Invited speaker, JSM, August 2011, Miami.
- Invited speaker, *The Third IMS-China International Conference*, July 2011, Xi'An, China.
- Invited speaker, *Bayesian Semi/Non Parametric Econometrics and Statistics*, June 2011, Yale.
- Invited speaker, *High Dimensional Statistics: Advances and Challenges*, May 2011, Singapore.
- Invited speaker, *Random Matrices and High Dimensional Statistics*, April 2011, University of Minnesota.
- Invited speaker, *Information Theory and Applications Workshop*, February 2011, UCSD.
- Invited speaker, *The Eighth ICSA International Conference: Frontiers of Interdisciplinary and Methodological Statistical Research*, Dec. 19-22, 2010, China.
- Invited speaker, A conference at the Wharton school in honor of L. D. Brown, Dec. 15-17, 2010, Philadelphia.
- Invited speaker, *IMS Annual meeting*, Aug. 9-13, 2010, Gothenburg, Sweden.

- Invited speaker, JSM, Noether Awards Invited Session, Vancouver, BC, Canada, July 31-Aug. 5, 2010.
- Invited speaker, Tweedie New Researcher Invited Lecture, *2010 New Researchers Conference,* Vancouver, BC, Canada, July 27-30, 2010
- Invited speaker, *International Conference on Statistics and Society,* July 10-12, 2010, China.
- Invited speaker, *Probability and Statistics---an international conference in honor of P.L. Hsu's 100th birthday,* July 5-7, 2010.
- Invited speaker, *International Conference at Yunnan University,* July 2-4, 2010, China.
- Invited speaker, *2010 ICSA Applied Statistics Symposium,* June 20-23, 2010, Indiana.
- Invited speaker, *2010 New England Statistics Symposium*, April 27, 2010, Harvard.
- Invited participant, *Modern Nonparametric Statistics*, March 28-April 3, 2010, Oberwolfach, Germany.
- Invited speaker, session on "Functional Data Analysis", *JSM, Aug., 2009*, Washington DC.
- Invited speaker, *the first IMS-Asia Pacific Rim Meeting*, July 2009, Seoul, Korea.
- Invited speaker, *the second IMS-China International Conference*, July 2009, Weihai, China.
- Invited lecture series on "Hypothesis testing and minimax estimation", statistics department, the Wharton school, University of Pennsylvania, fall 2008.
- Invited speaker, *High-Dimensional Data Analysis: Perspectives from the Interface of Statistics, Biosciences, and Information Sciences*, Oct 24-25, 2008, Harvard.
- Invited speaker, session on "Methodological Advances in Testing and Estimation of Gene Expression Differences", *JSM 2008*.
- Invited speaker, *Beijing International Conference on Machine Learning and Data Mining, June 2008*, Beijing, China.
- Invited participant, *Statistical Theory and Methods for Complex, High-Dimensional Data, 7 January - 1 March 2008,* Isaac Newton Institute for Mathematical Sciences, Cambridge, UK.
- Invited speaker, Chair of plenary sessions*, International Conference on the Frontier of Statistics: High Dimensional Data Analysis, 2007*, Kunming, China.
- Invited speaker, *International Workshop on Applied Probability (IWAP), 2006.*
- Invited talks in other departments:
  2004: Cornell stat., Wayne State math., Columbia Stat., Penn State stat., UC Davis stat., Ohio State stat., Iowa State stat,;
  2005: UConn stat, IBM Watson, Boston U. Math;
  2006: Rutgers stat., Columbia Stat;
  2007: UC Berkeley Stat., Harvard Stat., Harvard Biostat., Beijing University math, Renming University Stat.;
  2008: Newton Institute at Cambridge, Boston U. Math;
  2009: UPenn Wharton School, Columbia Biostat;
  2010: Temple Fox School, UPenn Wharton School, NYU Stern, Princeton, Wisconsin, CMU, Columbia Stat;
  2012: Boston U. Math, CCNU, Hongkong Univ. Sci. Tech., U Conn;
  2013: U. Chicago, Georgia Tech, Georgia State U, U. Michigan.
  2014: U. of Amsterdam, Boston U., ETH, Harvard Math, MIT
  2015: Heidelberg U., Columbia
  2024: UPenn Wharton School

Teaching

- Spring 2011, Spring 2013, Spring 2017, Spring 2018, Stat 611, *Decision Theory*.
- Fall 2004, Fall 2005, Fall 2015, Fall 2017, Stat 610, *Statistical Inference.*
- Spring 2005 and Spring 2006 and Spring 2007, Stat 242/542, *Theory of Statistics.*

- Spring 2006, Fall 2009, Fall 2011 and Fall 2013, Stat 680, *Nonparametric Estimation.*
- Fall 2006, Fall 2007, Fall 2012, Fall 2013, Fall 2015 Stat 241/541, *Probability Theory with Applications.*
- Spring 2007 and Spring 2009, Stat 619, *Statistical Decision Theory.*
- Fall 2007, Stat 673, *Functional Data Analysis.*
- Fall 2009 and Fall 2011, Stat 106/506, *Data Analysis*
- Spring 2010, Stat 365/665, *Data Mining and Machine Learning*

Ph. D. Students

- Zehao Dou: 2025, Member of the Technical Staff (Researcher), OpenAI
- Natalie Doss: 2020, Quantitative Researcher, Two-Sigma
- Tal Sarig: 2020, Data Science Researcher, Facebook
- Derek Feng: 2018, Senior Machine Learning Engineer, Blue Prism
- Anderson Zhang: 2018, Assistant Professor (2019-), Wharton, University of Pennsylvania
- Yu Lu: 2017, VP, Quantitative Researcher, Two-Sigma
- Chao Gao: 2016, Assistant Professor (2016-), University of Chicago, Statistics department
- Zhao Ren: 2014, Assistant Professor (2014-), University of Pittsburg, Statistics department
- Arlene Kim: 2012, Assistant Professor (2019-), Korea University, Statistics Department, Korea, co-advisor with David Pollard
- James Xing Hu: 2011, Executive Director, Senior Portfolio Manager, Income Partners, Hongkong.
- Wei Dou (two PhDs): 2010, Assistant Professor (2016-), Wharton, University of Pennsylvania, co-advisor with David Pollard.
- Peisi Yan: 2011, Data Analyst, Brown University
- Zheyang Wu: 2009, Associate Professor, WRI, Committee member, Biostatistics division

Grants

- **National Science Foundation, DMS 2412573 (PI),** *Statistical and Computational Guarantees of Estimation of Generative Models and Optimal Transport,* 2024/7-2027/6
- **National Science Foundation, DMS 2112918 (PI),** *Overparameterization, Global Convergence of EM, and Beyond***,** 2021/7-2024/6.
- **National Science Foundation (Investigator)***, **DMS 1918925/1922843***, *Collaborative Research: A Generalizable Data Framework Towards Precision Radiotherapy, 2019-2022*
- **National Science Foundation, DMS 1811740 (PI),** *Statistical and Computational Guarantees of Three Siblings: EM, Mean-field Variational Inference, and Gibbs Sampling***,** 2018/7-2021/6.
- **National Institutes of Health, NIH 1P50MH115716,** *Cellular, molecular, and functional imaging approaches to understanding early neurodevelopment in autism,* 2017/7-2022/6
- **National Science Foundation, DMS 1507511 (PI),** *Optimal Estimation of Statistical Networks***,** 2015/8-2018/7.
- **National Science Foundation, DMS 1209191 (PI),** *Estimation of Functionals of High Dimensional Covariance Matrices, 2012/9-2015/8.*
- **National Cancer Institute (Co-PI),** *Chinese Herbal Medicine as a Novel Paradigm for Cancer Chemotherapy, 9/1/2011-8/31/2016*

- **National Science Foundation, DMS 0854975 (PI),** *Focused Research Group--Statistical Inference for High-Dimensional Data: Theory, Methodology and Applications, 2009/9-2013/9. Jointly with T. Tony Cai and Tianxi Cai*
- **National Science Foundation, DMS-0852498 (PI)**, *Innovation and Inventiveness in Statistical Methodologies*, 2008/12 -- 2009/11.
- **National Science Foundation CAREER Award (PI)**, *Asymptotic Decision Theory and Its Applications*, 2007/5 -- 2012/10.

Yale University Service

- Committee on Teaching, Learning and Advising, Yale college, 2024-2025
- Standing Advisory and Appointments Committee for the Social Science division of the Faculty of Arts and Sciences, 2023-2024, 2025 (Spring)
- Social Science Dean Selection Committee, 2021
- University Librarian Search Committee, 2019
- Neuroscience Working Group, 2019
- Advisory Committee on Library Policy, 2019-2020, 2017-2018
- PhD admission committee, 2020 and many other years
- Faculty search committee, 2019 and many other years
- STEM Teaching Committee, 2013-2015.
- Standing Advisory and Appointments Committee for the School of Public Health (SPH), 2012-2013.
- Freshman Advisor for Silliman College.

Professional Affiliations

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