Contents

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I Earned Degrees

Sep. 1999	*PhD, Statistics*, Stanford University, Stanford, CA.
Apr. 1997	*M.S., Electrical Engineering*, Stanford University, Stanford, CA.
Apr. 1996	*M.S., Statistics*, Stanford University, Stanford, CA.
Jun. 1993	*B.S., Mathematics*, University of Science and Technology of China (USTC), Hefei, China.

II Employment History

7/2021–	*Institute for Data Engineering and Science, Georgia Institute of Technology.* Associate Director for Research, https://research.gatech.edu/data
11/2018–	*School of Industrial & Systems Engineering, Georgia Institute of Technology.* A. Russell Chandler III Professor
9/2017–	*Georgia Institute of Technology.* Executive Director of the Transdisciplinary Research Institute for Advancing Data Science (triad.gatech.edu)
8/2017–	*Georgia Institute of Technology.* Associate Director of the Master of Science in Analytics (analytics.gatech.edu/)
8/2012–	*School of Industrial & Systems Engineering, Georgia Institute of Technology.* Professor
6/2017–8/2017	*Air Forces Research Labs* (AFRL), Rome, NY. Summer Faculty Fellow
8/2016–12/2016	*The Statistical and Applied Mathematical Sciences Institute* (SAMSI), NC. Fellow
8/2013–8/2015	*National Science Foundation*, Arlington VA. Program Director (Statistics, Big Data, and CDS&E-MSS)
8/2006–8/2012	*School of Industrial & Systems Engineering, Georgia Institute of Technology.* Associate Professor
1/2006–7/2006	*Department of Statistics, University of California*, Riverside, CA. Associate Professor (with tenure)
9/2004–12/2004	*Institute of Pure and Applied Mathematics* (IPAM), Los Angeles, CA. Fellow
8/1999–12/2005	*School of Industrial & Systems Engineering, Georgia Institute of Technology.* Assistant Professor

III Honors and Awards

A International or National Awards

July 1989	*Braunschweig*, Germany. *Gold Medal Winner* in 30th International Mathematics Olympiad (IMO30). Ranked *number* 2 in the national mathematical competition.
May 2004	*Senior Member*, IEEE.
June 2006	Elected for Emerging Research Fronts in Mathematics, one every two month in the entire filed of mathematics. www.esi-topics.com/erf/2006/june06-Donoho_Huo.html.
March 2017	*Fellow*, American Statistical Association.

B Institute or School Awards

- National Science Foundation

June 2015	Quarterly Kudo's Awards - Job Well Done, NSF/MPS/DMS

- Georgia Institute of Technology

2000	Class of 1969 Teaching Fellow.
2005	Georgia Tech Sigma Xi Young Faculty Award. One per year.

- University of Science and Technology of China (USTC), Hefei, China

1989	Zhang-Zong-Zhi Fellowship (the highest award for freshman).
1990, 1991	University Fellowship.
1992	Hua-Wei Fellowship (Prize given to one student per department).
1993	Honorable Mention in the Modeling Competition in Mathematics.

- Honorary Positions

7.2011-7.2014	Guest professor at Jiangxi University of Finance and Economics, School of Information Technology, Nanchang, China.

IV Research, Scholarship, and Creative Activities

A Published Books and Parts of Books

A1 Books

A2 Refereed Book Chapters

B for book. Names in **boldface** are my advisees (i.e., post-docs, graduate or undergraduate students).

B1. David L. Donoho and Xiaoming Huo (2002). Beamlets and multiscale image analysis. In *Multiscale and Multiresolution Methods.* Eds. T. J. Barth, T. Chan, and R. Haimes, *Springer Lecture Notes in Computational Science and Engineering, 20*: 149-196.

B2. Xiaoming Huo (2005). Beamlets and multiscale modelling. Entry for the *2nd Edition of Encyclopedia of Statistical Sciences,* Eds. C. B. Read, N. Balakrishnan, and B. Vidakovic, Wiley & Sons, NJ.

B3. Xiaoming Huo and **Xuelei S. Ni** (2007). Some recent results in model selection. In *Quantitative Medical Data Analysis Using Mathematical Tools and Statistical Techniques*, Eds. D. Hong and Y. Shyr. World Scientific Publication, Singapore. Page 25-42, July.

B4. Xiaoming Huo, **Xuelei S. Ni**, and **Andrew K. Smith** (2008). A survey of manifold-based learning methods. In *Recent Advances in Data Mining of Enterprise Data*, T. W. Liao and E. Triantaphyllou (Eds.) World Scientific, Singapore, pp 691-745, January.

B5. Xiaoming Huo (2010). Beamlets. *Wiley Interdisciplinary Reviews: Computational Statistics*, Vol. 2, No. 1 (Jan./Feb.), Eds. Edward J. Wegman, Yasmin H. Said, and David W. Scott, Wiley & Sons, NJ, pp 116-119.

B6. Zhouwang Yang, **Huizhi Xie**, and Xiaoming Huo (2014). Data-driven smoothing can preserve good asymptotic properties. In *Perspectives on Big Data Analysis* Contemporary Mathematics, vol. 622, American Mathematical Society, Providence, RI, pp. 125-139.

B7. Xiaoming Huo, **Cheng Huang**, and **Xuelei Sherry Ni** (2018). Scattered data and aggregated inference. In *Handbook of Big Data Analytics*, Series: Springer Handbooks of Computational Statistics. Editors: Wolfgang Härdle, Henry Horng-Shing Lu, and Xiaotong Shen. Chapter 4, Springer.

B8. Deng, Shijie, **Min Sim**, and Xiaoming Huo (2017). Empirical analysis of market connectedness as a risk factor for explaining expected stock returns. In *Portfolio Construction, Measurement, and Efficiency*, Series: Springer International Publishing. pp. 275-289.

B9. **Jianzhou Feng**, Xiaoming Huo, Li Song, Xiaokang Yang, and Wenjun Zhang (2017). Image nonnegative factorization: formulation and numerical strategies. In *Tsinghua Lectures in Mathematics*, Publisher: the Higher Education Press (in China) and International Press (in USA).

B10. **Chuanping Yu** and Xiaoming Huo (2019). Optimal projections in the distance-based statistical methods. In *Statistical Modeling in Biomedical Research - Contemporary Topics and Voices in the Field*. Editors: Yichuan Zhao and Ding-Geng Chen. Publisher: Springer. Series: Emerging Topics in Statistics and Biostatistics.

A3 Edited Volumes

E1. David Glickenstein, Keaton Hamm, Xiaoming Huo, Yajun Mei, Martin Stoll (2021). Mathematical Fundamentals of Machine Learning. *Frontiers in Applied Mathematics and Statistics, section Mathematics of Computation and Data Science*, Editorial.

A4 Other Parts of Books

B Refereed Publications and Submitted Articles

B1 Published and Accepted Journal Articles

J for Journal.

J1. David L. Donoho and Xiaoming Huo (2001). Uncertainty principles and ideal atomic decomposition. *IEEE Transactions on Information Theory, 47* (7): 2845-2862, November.

J2. Di Chen, Jye-Chyi Lu, Xiaoming Huo, and Ming Yin (2001). Optimum percentile estimating equations for nonlinear random coefficient models. *Journal of Statistical Planning and Inference, 97* (2): 275-292, September.

J3. Xiaoming Huo (2002). Multiscale Approximation MEthods (MAME) to locate embedded consecutive subsequences — its applications in statistical data mining and spatial statistics. *Computers & Industrial Engineering, 43* (4): 703-720, September.

J4. Xiaoming Huo (2004). A statistical analysis of Fukunaga Koontz transform. *IEEE Signal Processing Letters, 11* (2): 123-126, February.

J5. Xiaoming Huo and **Jihong Chen** (2004). Building a cascade detector and applications in automatic target recognition. *Applied Optics: Information Processing (IP), 43* (2): 293-303, January.

J6. Xiaoming Huo and Jye-Chyi Lu (2004). A network flow approach in finding maximum likelihood estimate of high concentration regions. *Computational Statistics and Data Analysis, 46* (1): 33-56, May.

J7. David L. Donoho and Xiaoming Huo (2004). BeamLab and reproducible research. *International Journal of Wavelets, Multiresolution and Information Processing (IJWMIP), 2* (4): 391-414, December.

J8. Xiaoming Huo (2005). Minimax correlation between a line segment and a beamlet. *Statistics & Probability Letters, 72* (1): 71-81, April.

J9. Xiaoming Huo (2005). Exact lower bound for proportion of maximally embedded beamlet. *Applied Mathematics Letters, 18* (5): 529-534, May.

J10. Ery Arias-Castro, David L. Donoho and Xiaoming Huo (2005). Near-optimal detection of geometric objects by fast multiscale methods. *IEEE Trans. Information Theory, 51* (7): 2402-2425, July.

J11. Ery Arias-Castro, David L. Donoho, Xiaoming Huo, and Craig A. Tovey (2005). Connect-the-dots: how many random points can a regular curve pass through? *Advances in Applied Probability, 37* (3), 571-603, September.

J12. Xiaoming Huo and **Jihong Chen** (2005). JBEAM: multiscale curve coding via beamlets. *IEEE Trans. Image Processing, 14* (11), 1665-1677, November.

J13. Ery Arias-Castro, David L. Donoho and Xiaoming Huo (2006). Adaptive multiscale detection of filamentary structures embedded in a background of Uniform random points. *Annals of Statistics, 34* (1), 326-349, February.

J14. **Myong K. Jeong**, Jye-Chyi Lu, Xiaoming Huo, Brani Vidakovic, and Di Chen (2006). Wavelet-based data reduction techniques for process fault detection. *Technometrics, 48* (1), 26-40, February. (Invited presentation in Technometrics session, QSR cluster, in 2005 Informs Annual Meeting.)

J15. **Jihong Chen** and Xiaoming Huo (2006). Distribution of the length of the longest significance run on a Bernoulli net, and its applications. *Journal of the American Statistical Association, 101* (473), 321-331, March.

J11a. Ery Arias-Castro, David L. Donoho, Xiaoming Huo, and Craig A. Tovey (2006). Correction for "Connect-the-dots: how many random points can a regular curve pass through?" *Advances in Applied Probability, 38* (2), 579, June.

J16. Xiaoming Huo, S. B. Kim, Kwok L. Tsui, and Shuchun Wang (2006). FBP: A frontier-based tree-pruning algorithm. *INFORMS Journal on Computing, 18* (4): 494-505, Fall.

J17. **Jie Chen** and Xiaoming Huo (2006). Theoretical results on sparse representations of Multiple Measurement Vectors. *IEEE Trans. Signal Processing, 54* (12): 4634-4643, December.

J18. **Xuelei S. Ni** and Xiaoming Huo (2007). Statistical interpretation of the importance of phase information in signal and image reconstruction. *Statistics and Probability Letters, 77* (4): 447-454, February.

J19. Xiaoming Huo and **Xuelei S. Ni** (2007). When do stepwise algorithms meet subset selection criteria? *Annals of Statistics, 35* (2): 870-887, April.

J20. **Jie Chen**, Shijie Deng, and Xiaoming Huo (2008). Electricity price curve modeling and forecasting by manifold learning. *IEEE Trans. on Power Systems, 23*, (3): 877-888, August.

J21. **Xuelei S. Ni** and Xiaoming Huo (2009). Another look at Huber's estimator: a new minimax estimator in regression with stochastically bounded noise. *Journal of Statistical Planning & Inference, 139* (2): 503-515, February.

J22. Xiaoming Huo and **Andrew K. Smith** (2009). Matrix perturbation analysis of local tangent space alignment. *Linear Algebra & Its Applications, 430*: 732-746, January.

J23. Xiaoming Huo and **Xuelei S. Ni** (2009). Detectability of convex-shaped objects in digital images, its fundamental limit and multiscale analysis. *Statistica Sinica, 19* (4): 1439-1462, October.

J24. **Jie Chen** and Xiaoming Huo (2009). A Hessian regularized nonlinear time series model. *Journal of Computational and Graphical Statistics, 18* (3): 694-716, September.

J25. S. B. Kim , Xiaoming Huo , and Kwok L. Tsui (2009). A finite-sample simulation study of cross validation in tree-based models. *Information Technology and Management, 10* (4):223-233, December.

J26. Xiaoming Huo and **Jie Chen** (2010). Complexity of penalized likelihood estimation. *Journal of Statistical Computation and Simulations, 80* (7): 747-759, July.

J27. **Yibiao Lu**, Xiaoming Huo, Oktay Arslan, and Panagiotis Tsiotras (2011). An incremental, multi-scale search algorithm for dynamic path planning with low worst case complexity. *IEEE Transactions on Systems, Man, and Cybernetics, Part B Cybernetics, 41* (6): 1556-1570.

J28. **Yibiao Lu**, Xiaoming Huo, and Panagiotis Tsiotras (2012). Beamlet-based graph structure for path planning using multiscale information. *IEEE Trans. Automatic Control, 57* (5): 1166-1178.

J29. **Heeyoung Kim** and Xiaoming Huo (2012). Locally optimal adaptive smoothing splines. *Journal of Nonparametric Statistics, 24* (3):665-680, September.

J30. Kaveh Bastani, Zhenyu (James) Kong, Wenzhen Huang, Xiaoming Huo, and Yingqing Zhou (2013). Fault diagnosis using an enhanced relevance vector machine (RVM) for partially diagnosable multi-station assembly processes. *IEEE Transactions on Automation Science and Engineering, 10* (1): 124-136. January.

J31. Chengliang Wang and Xiaoming Huo (2013). Object tracking under low signal-to-noise-ratio with the instantaneous-possible-moving-position model. *Signal Processing, 93* (5): 1044-1055, May.

J32. **Heeyoung Kim** and Xiaoming Huo (2013). Optimal sampling and curve interpolation via wavelets. *Applied Mathematics Letters 26* (7), 774-779, July.

J33. **Heeyoung Kim**, Xiaoming Huo, and Jianjun Shi (2014). A single interval based classifier. *Annals of Operations Research, 216* (1): 307-325, May.
http://www.springer.com/alert/urltracking.do?id=L471c28fMeb6377Sae0acc1

J34. **Heeyoung Kim** and Xiaoming Huo (2014). Asymptotic optimality of a multivariate version of the generalized cross validation in adaptive smoothing splines. *Electronic Journal of Statistics, Vol. 8* (0), 159-183.

J35. **Heeyoung Kim**, Xiaoming Huo, Meghan Shilling, and Hy D. Tran (2014). A Lipschitz regularity-based statistical model, with applications in coordinate metrology. *IEEE Transactions on Automation Science and Engineering, Vol 11* (2, ITASC7), 327-337, April.

J36. **Jianzhou Feng**, Xiaoming Huo, Li Song, Xiaokang Yang, and Wenjun Zhang (2014). Evaluation of different algorithms of nonnegative matrix factorization in Temporal PsychoVisual Modulation. *IEEE Transactions on Circuits and Systems for Video Technology, Vol 24* (4), 553-565, April.

J37. **Yuanyuan Zhang**, Renfu Li, Dinggen Li, Yang Hu, Xiaoming Huo (2014). Stabilization of the stochastic jump diffusion systems by state-feedback control. *Journal of the Franklin Institute, 351* (3), 1596-1614, March.

J38. **JianZhou Feng**, Li Song, Xiaoming Huo, Xiaokang Yang, Wenjun Zhang (2015). An optimized pixel-wise weighting approach for patch-based image denoising. *IEEE Signal Processing Letters, 22* (1), Article number 6880752, Pages 115-119, January.

J39. Huizhu Wang, Seong-Hee Kim, Xiaoming Huo, Youngmi Hur, and James Wilson (2015). Monitoring nonlinear profiles adaptively with a wavelet-based distribution-free CUSUM chart. *International Journal of Production Research, 53* (15), 4648-4667, August.

J40. **Zhikun Lei**, Renfu Li, Xuelei Sherry Ni, and Xiaoming Huo (2015). High-dimensional semi-supervised learning via a fusion-refinement procedure. *Signal Processing, 114*, 171-182, September. http://www.sciencedirect.com/science/article/pii/S0165168415000961

J41. Fang Wang, Renfu Li, **Zhikun Lei**, Xuelei Sherry Ni, Xiaoming Huo, Ming Chen (2015). Kernel fusion-refinement for semi-supervised nonlinear dimension reduction. *Pattern Recognition Letters, 63*, 16-22, October. http://dx.doi.org/10.1016/j.patrec.2015.06.005

J42. Xiaoming Huo and Gábor J. Székely (2016). Fast computing for distance covariance. *Technometrics*, 58:4, 435-447.

J42a. Xiaoming Huo and Gábor J. Székely (2017). Clarifications for "Fast computing for distance covariance" by Xiaoming Huo and Gábor J. Székely. *Technometrics*, 59:1, 134-135, February.

J43. Zhijun Fang, Jenq-Neng Hwang, Xiaoming Huo, Hyo-Jong Lee, and Joachim Denzler (2017). Editorial of 'emergent techniques and applications for big visual data'. *Special Issue in International Journal of Digital Multimedia Broadcasting*, Article ID 6468502, doi:10.1155/2017/6468502. Hindawi.

J44. **Yuanyuan Zhang**, Renfu Li, Wei Zhao, and Xiaoming Huo (2018). Stochastic leader-following consensus of multi-agent systems with measurement noises and communication time-delays. *Neurocomputing*, 282, 136-145.

J45. Xiaoming Huo and **Shanshan Cao** (2019). Manifold-based learning: linear methods. *Wiley StatsRef: Statistics Reference Online*. https://doi.org/10.1002/9781118445112.stat08145. Published Online: 18 February 2019.

J46. Xiaoming Huo and **Shanshan Cao** (2019). Manifold-based learning: nonlinear methods. *Wiley StatsRef: Statistics Reference Online*. https://doi.org/10.1002/9781118445112.stat08222. Published Online: 18 February 2019.

J47. Xiaoming Huo and **Shanshan Cao** (2019). Aggregated inference. *Wiley Interdisciplinary Reviews: Computational Statistics* 11:1, January/February. Edited by Edward J. Wegman, Yasmin H. Said and David W. Scott. https://doi.org/10.1002/wics.1451.

J48. **Cheng Huang** and Xiaoming Huo (2019). A distributed one-step estimator. *Mathematical Programming, Series B*, 174(1), 41-76. DOI 10.1007/s10107-019-01369-0

J49. **Yuanyuan Zhang**, Renfu Li, and Xiaoming Huo (2019). Switching-dominated stability of numerical solutions for hybrid neutral stochastic differential delay equations. *Nonlinear Analysis: Hybrid Systems* 33: 76-92.

J50. **Sim M.K.**, Deng S. & Huo X. (2020) What can cluster analysis offer in investing? – Measuring structural changes in the investment universe. *International Review of Economics and Finance*, doi: https://doi.org/10.1016/j.iref.2020.09.004.

J51. **Namjoon Suh**, Xiaoming Huo, Eric Heim, Lee Seversky (2021) A network model that combines latent factors and sparse graphs. *Statistical Analysis and Data Mining: The ASA Data Sci Journal* 14(2): 97-115, April. http://dx.doi.org/10.1002/sam.11492

J52. **Shanshan Cao**, Xiaoming Huo, and Jong-Shi Pang (2021). A unifying framework of high-dimensional sparse estimation with difference-of-convex (DC) regularization. *Statistical Science* Accepted.

J53. **Kai Ni**, **Shanshan Cao**, and Xiaoming Huo (2021). Asymptotic Convergence Rates of the Length of the Longest Run(s) in an Inflating Bernoulli Net, *IEEE Transactions on Information Theory*, volume 67, issue 9, pages 5922-5941, September. doi: 10.1109/TIT.2021.3097886.

J54. **Cai Yi**, Yiqun Li, Xiaoming Huo, and Kwok-Leung Tsui (2021). A promising new tool for fault diagnosis of railway wheelset bearings: SSO-based Kurtogram. *ISA Transactions*, in press. doi.org/10.1016/j.isatra.2021.09.009

J55. **Cheng Huang** and Xiaoming Huo (2021). A statistically and numerically efficient independence test based on random projections and distance covariance. *Front. Appl. Math. Stat. - Statistics*, Accepted. DOI: 10.3389/fams.2021.779841

B2 Conference Presentation with Proceedings (Refereed)

Full papers are required for reviewing, with at least two anonymous referees. **C** for Conference.

C1. David L. Donoho and Xiaoming Huo (1997). Large-sample modulation classification using Hellinger representation. *Proc. Signal Processing Advances on Wireless Communication (SPAWC)*, Paris, France.

C2. Xiaoming Huo and S. Liu (1998). Stochastic behavior of inter-drop time in an M-buffer video decoding scenario. *International Conference on Image Processing (ICIP)*, Chicago, IL. (ICIP is a top international conference on image processing.)

C3. Xiaoming Huo and David L. Donoho (1998). A simple and robust modulation classification method via counting. *International Conference on Acoustic Speech and Signal Processing (ICASSP)*, Seattle, WA. (ICASSP is a top international conference on signal processing.)

C4. Xiaoming Huo and A. Stoschek (1999). Experiments with combined image transforms and its implications in biomedical image analysis. *First USF International Workshop on Digital and Computational Video (DCV)*, Tampa, FL.

C5. David L. Donoho and Xiaoming Huo (2001). Applications of beamlets to detection and extraction of lines, curves and objects in very noisy images. *Nonlinear Signal and Image Processing (NSIP)*, Baltimore, MD, June.

C6. Xiaoming Huo and David L. Donoho (2002). Recovering filamentary objects in severely degraded binary images using beamlet-decorated partitioning. *International Conference on Acoustic Speech and Signal Processing, (ICASSP)*, Orlando, FL, May.

C7. Xiaoming Huo and **Jihong Chen** (2002). Local linear projection (LLP). *First IEEE Workshop on Genomic Signal Processing and Statistics (GENSIPS)*, Raleigh, NC, October. `http://www.gensips.gatech.edu/proceedings/.`

C8. Xiaoming Huo (2003). A geodesic distance and local smoothing based clustering algorithm to utilize embedded geometric structures in high dimensional noisy data. *SIAM International Conference on Data Mining, Workshop on Clustering High Dimensional Data and its Applications,* San Francisco, CA, May.

C9. Xiaoming Huo, **Jihong Chen** and David L. Donoho (2003). Multiscale significance run: realizing the 'most powerful' detection in noisy images. *Asilomar Conference on Signals, Systems, and Computers,* Pacific Grove, CA, November.

C10. Xiaoming Huo and **Jihong Chen** (2004). Detecting the presence of an inhomogeneous region in a homogeneous background: taking advantages of the underlying geometry via manifolds. *International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, Montreal, Quebec, Canada, May.

C11. Xiaoming Huo, **Jihong Chen**, and David L. Donoho (2004). Coding lines and curves via digital beamlets. *Data Compression Conference (DCC)*, Snowbird, UT, March. (DCC is a top international conference on data compression.)

C12. **Jie Chen** and Xiaoming Huo (2005). Sparse representations for Multiple Measurement Vectors (MMV) in an over-complete dictionary. *International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, Philadelphia, PA, March.

C13. **Xuelei S. Ni** and Xiaoming Huo (2005). Enhanced leaps-and-bounds methods in subset selections with additional optimality tests. (One of four finalists in the *INFORMS QSR Best Student Paper Competition*; http://qsr.section.informs.org/qsr_activities.htm.)

C14. **Andrew K. Smith**, Xiaoming Huo, and Hongyuan Zha (2008). Convergence and rate of convergence of a manifold-based dimension reduction. *NIPS* (a prestigious conference in computer science). Vancouver, Canada, December.

C15. Jianzhou Feng, Li Song, Xiaoming Huo, Xiaokang Yang, and Wenjun Zhang (2010). Image denoising using local tangent space alignment. Visual Communications and Image Processing (VCIP), 11-14 July, 2010, Huang Shan, An Hui, China.

C16. **Yibiao Lu**, Xiaoming Huo, and Panagiotis Tsiotras (2010). Beamlet-like data processing for accelerated path-planning using multiscale information of the environment. 49th IEEE Conference on Decision and Control, Atlanta, GA, December.

C17. **Jianzhou Feng**, Li Song, Xiaoming Huo, Xiaokang Yang, and Wenjun Zhang (2011). Learning sparse dictionaries with a popularity-based model. *International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, Prague, Czech Republic, May 22-27.

C18. G. Deshpande, C. Kerssens, Xiaoming Huo, and Xiaoping Hu (2011). Simultaneous Investigation of Local and Distributed Functional Brain Connectivity from fMRI Data. 5th IEEE EMBS conference on Neural Engineering, Cancun, Mexico, April 27 - May 1.

C19. **Yibiao Lu**, Xiaoming Huo, Oktay Arslan, and Panagiotis Tsiotras (2011). Multi-scale LPA* with low worst-case complexity guarantees. IEEE/RSJ International Conference on Intelligent Robots and Systems. September 25-30, San Francisco, CA.

C20. **Oktay Arslan**, Panagiotis Tsiotras and Xiaoming Huo (2011). Solving shortest path problems with curvature constraints using Beamlets. IEEE/RSJ International Conference on Intelligent Robots and Systems. September 25-30, San Francisco, CA.

C21. Debraj De, Wen-Zhan Song, Mingsen Xu, Diane Cook, and Xiaoming Huo (2012). FindingHuMo: real-time tracking of motion trajectories from anonymous binary sensing in smart environments. The 32nd International Conference on Distributed Computing Systems (ICDCS'12). (acceptance ratio 13%: 71 out of 515)

C22. Debraj De, Wen-Zhan Song, Mingsen Xu, Cheng-Liang Wang, Diane Cook, and Xiaoming Huo (2012). FindingHuMo: real-time user tracking in smart environments with anonymous binary sensing. INFOCOM–Demo/Poster Session.

C23. **Jianzhou Feng**, Li Song, Xiaoming Huo, Xiaokang Yang, and Wenjun Zhang (2012). New bounds on image denoising: viewpoint of sparse representation and non-local averaging. Visual Communications and Image Processing (VCIP), 27-30 November, San Diego, USA.

C24. Chengliang Wang, Xiaoming Huo and W.-Z. Song (2013). Integer programming based approach for multiple-targets trajectory identification in WSNs. 2013 IEEE International Conference on Networking Sensing and Control, Paris-Evry, France, April 10-12.

C25. **Hongteng Xu**, Dixin Luo, Xiaoming Huo and Xiaokang Yang (2013). World expo problem and its mixed integer programming based solution. Workshop on Behavior and Social Informatics (BSI-UCBCN2013), in conjunction with the 2013 Pacific-Asia Conference on Data Mining and Knowledge Discovery (PAKDD2013), Gold Coast, Australia, April 14. (acceptance ratio 44%: 16 out of 36)

C26. **Jianzhou Feng**, Li Song, Xiaoming Huo, Xiaokang Yang, Wenjun Zhang (2013). Image restoration via efficient gaussian mixture model learning. International Conference on Image Processing (ICIP), Melbourne, Australia, September 15-18.

C27. **Jianzhou Feng**, Li Song, Xiaoming Huo, Xiaokang Yang, Wenjun Zhang (2015). An optimized pixel-wise weighting approach for patch-based image denoising. 40th IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), Brisbane, Australia, April 19-24.

C28. **Namjoon Suh**, **Hyunouk Ko**, Xiaoming Huo (2022). Generalization of overparametrized deep neural network under noisy observations. International Conference on Learning Representations (ICLR). Virtual: `https://openreview.net/forum?id=bZJbzaj_IlP`.

B3 Other Refereed Material

The following papers are reviewed by fewer than two anonymous referees, or not reviewed.

W1. [1] David L. Donoho and Xiaoming Huo (1999). Combined image representation using edgelets and wavelets. Published in *Wavelet Applications in Signal and Image Processing VII*. Presented in *SPIE*, Denver, CO.

W2. David L. Donoho and Xiaoming Huo (2000). Beamlet pyramids: a new form of multiresolution analysis, suited for extracting lines, curves and objects from very noisy image data. Published in *Wavelet applications in signal and image processing VIII*. Presented in *SPIE*, San Diego, CA.

W3. Xiaoming Huo (2001) Some examples of untraditional statistical computing. Joint Statistics Meeting *(JSM)*, Atlanta, August.

W4. Xiaoming Huo (2002). Multiscale statistical models based on beamlets and wedgelets. *2002 Proceedings of the American Statistical Association, Statistical Computing Section [CD-ROM] (JSM)*, American Statistical Association, Alexandria, VA.

W5. **Jihong Chen** and Xiaoming Huo (2002). Beamlet coder: a tree-based, hierarchical contour representation and coding method. *International Conference on Acoustic Speech and Signal Processing (ICASSP)*, Orlando, FL, May. (Only the abstract is published.)

[1] W for other refereed material.

W6. Xiaoming Huo, **Jihong Chen**, and D.L. Donoho (2003). Multiscale detection of filamentary features in image data. *SPIE Wavelet-X,* San Diego, CA, August.

W7. Xiaoming Huo, M. Elad, A. G. Flesia, B. Muise, R. Stanfill, J. Friedman, B. Popescu, **Jihong Chen**, A. Mahalanobis, and David L. Donoho (2003). Optimal reduced-rank quadratic classifiers using the Fukunaga-Koontz transform, with applications to automated target recognition. *SPIE's 7th Annual International Symposium on Aerospace/Defense Sensing, Simulation, and Controls (AeroSense)*, Orlando, FL, April.

W8. David L. Donoho and Xiaoming Huo (2004). About BeamLab: general information and how to get started. *Published as an introductory document on the web page of the software package* BeamLab. `http://www-stat.stanford.edu/~beamlab/`.

W9. Xiaoming Huo (2006). Some recent results on the performance and implementation of manifold learning algorithms. Proceedings of AI/DM workshop prior to the INFORMS Annual Meeting, Pittsburgh, PA, November. `http://ieweb.uta.edu/vchen/AIDM/AIDM-Huo.pdf.`

W10. Xiaoming Huo and Craig A. Tovey (2008). Current knowledge on the connect-the-dots problems. *Proceedings of 2008 NSF Engineering Research and Innovation Conference*, Knoxville, TN, January.

W11. Panagiotis Tsiotras and Xiaoming Huo (2010). Multi-scale path planning using beamlets. *Proceedings of 2010 NSF Engineering Research and Innovation Conference*, Atlanta, GA, January.

W12. Xiaoming Huo (2014). NSF funding opportunity. *IMS Bulletin 43* (3). April/May.

W13. Xiaoming Huo, Thomas F. Russell, and Christopher Stark (2014). Funding Opportunities: Computational and Data-Enabled Science and Engineering in Mathematical and Statistical Sciences. *AmStat News, #442.* April.

W14. Xiaoming Huo, Jennifer Pearl, Henry Warchall, Michael Vogelius (2014). DMS Update on Interdisciplinary & Workforce Programs. *SIAM News, 47* (8), October.
http://sinews.siam.org/DetailsPage/tabid/607/ArticleID/216/DMS-Update-on-Interdisciplinary-Workforce-Programs.aspx

W15. Xiaoming Huo, Jennifer S. Pearl, Henry Warchall, Michael Vogelius (2014). DMS Funding Opportunities Update. *Notices of the American Mathematical Society, 61* (10): 1246-1248, November.

W16. Michael Vogelius, Xiaoming Huo, and Nandini Kannan (2015). NSF's Big Data Initiative – Opportunities for Applied and Computational Mathematics. *SIAM News, 48* (3), April.

W17. Michael Vogelius, Nandini Kannan, and Xiaoming Huo (2015). NSF Big Data Funding Opportunity for the Statistics Community. *Amstat News, Issue #454*, April.

B4 Submitted Journal Articles (with Date of Submission)

1. Kai Ni, Shanshan Cao, and Xiaoming Huo. Fast and asymptotically powerful detection for filamentary objects in digital images. Submitted on 2/25/2019. arxiv.org/abs/2009.09310

2. Yibiao Lv, Shanshan Cao, Zhouwang Yang, Xiaoming Huo. High-order Laplacian-based regularization achieves the optimal rate in function estimation. Submitted on 3/18/2019.

3. Chuanping Yu and Xiaoming Huo. Distance-based independence screening for canonical analysis. Submitted on December 29, 2018. arxiv.org/abs/1903.00037

4. Cheng Huang, and Xiaoming Huo. An Efficient and Distribution-Free Two-Sample Test Based on Energy Statistics and Random Projections. arxiv.org/abs/1707.04602

5. Cheng Huang, Xiaoming Huo. A Statistically and Numerically Efficient Independence Test based on Random Projections and Distance Covariance. arxiv.org/abs/1701.06054

6. Yujie Zhao, Xiaoming Huo, and Yajun Mei. Identification of Underlying Dynamic System from Noisy Data with Splines. arxiv.org/abs/2103.10231

7. Yujie Zhao, Xiaoming Huo. A Homotopic Method to Solve the Lasso Problems with an Improved Upper Bound of Convergence Rate. arxiv.org/abs/2010.13934

8. Yuchen He, Namjoon Suh, Xiaoming Huo, Sungha Kang, Yajun Mei. Asymptotic Theory of ℓ_1-Regularized PDE Identification from a Single Noisy Trajectory. arxiv.org/abs/2103.07045

9. Juan Du, Shanshan Cao, Jeffrey H. Hunt, Xiaoming Huo. Optimal Shape Control via L_∞ Loss for Composite Fuselage Assembly. arxiv.org/abs/1911.03592

C Other Publications and Creative Products

C1 Non-refereed Conference Presentations with Proceedings

7/30/2019 The 2019 Joint Statistical Meeting, Denver, Colorado.

C2 Software

See a list at https://pwp.gatech.edu/xiaoming-huo/software/.

C3 Patents

C3.a. Patents Awarded
C3.b. Provisional Patents, Applications, and Invention Disclosures

C4 Other Creative Products

D Presentations

Only list the activities in the past five years.

D1 Keynote Addresses and Plenary Lectures

8/17/2013	Workshop of System Informatics and Analytics, the 9th IEEE Conference on Automation Science and Engineering (IEEE CASE 2013), Madison, WI.
3/5/2014	Data Science Symposium 2014. NIST campus, Gaithersburg, MD.
12/4/2014	The 2nd IEEE Global Conference on Signal and Information Processing, Atlanta, GA.

1/9/2015 IMA-HK-IAS Joint program on statistics and computational interfaces to big data, The Hong Kong University of Science and Technology, Hong Kong.

6/4/2016 International Symposium on Modeling and Simulation of Complex Management Systems (ISMSCS 2016), Shenzhen University, Shenzhen, China.

6/6/2016 The sixth quality and reliability technology international forum, Chinese academy on mathematics and system engineering, Xijiao hotel, Peking, China.

10/10/2016 The second Georgia Statistics Day, Georgia Tech, Atlanta, GA.

5/2/2017 SAMSI Transition Workshop, Research Triangle Park, NC.

4/27/2018 BD2K Guide to the Fundamentals of Data Science Web Lecture, https://bigdatau.ini.usc.edu/data-science-seminars.

8/22/2018 The 4th International Conference on Control Science and Systems Engineering ICCSSE 2018, Huazhong University of Science and Technology of China, Wuhan, China.

12/8/2018 Workshop of Joint Research Data Center, Central University of Finance and Economics, Beijing, China.

7/29/2021 3rd International Conference on Statistics: Theory and Applications (ICSTA'21), virtual. https://icsta.net/

12/13/2021 International Conference on Web Services (2021), virtual. icws.org/2021

D2 Invited Conference and Workshop Presentations

6/26/2015 the 10th International Conference on "Frontiers of Statistics", Academy of Mathematics and Systems Science, Beijing, China.

6/20/2016 The Fourth International Conference on the Interface between Statistics and Engineering 2016 (ICISE2016), University of Palermo, Viale delle Scienze, Edificio 19, Palermo, Italy. http://www.cityu.edu.hk/seem/icise2016/. Technometrics invited paper session.

12/10/2016 9th International Conference of the ERCIM WG on Computational and Methodological Statistics, Higher Technical School of Engineering, University of Seville, Spain.

12/18/2016 International Workshop on Engineering Statistics, East China Normal University, Shanghai, China.

3/22/2017 The First International Conference on Mathematics of Data Science (MathDS), Department of Mathematics of Hong Kong Baptist University, Hong Kong.

6/1/2017 The Workshop on Frame Theory and Sparse Representation for Complex Data (29 May - 2 June, 2017), program of "Data Sciences: bridging mathematics, physics and biology", Institute for Mathematical Sciences (IMS), National University of Singapore, Singapore.
http://www2.ims.nus.edu.sg/Programs/017data/wk1.php

6/28/2017 The 7th International Workshop on Quality, Reliability, and Data Science, Chinese Academy of Science, Beijing, China.

7/31/2017 The 2017 Joint Statistical Meeting, Baltimore, MA.

1/12/2018 IAS workshop on "The Mathematics of Deep Learning," Hong Kong University of Science & Technology, Institute of Advanced Study, Hong Kong, China.

5/21/2018	Workshop "Recent Developments in Statistical Theory and Methods Based on Distributed Computing (18w5089)" at the BIRS Affiliate Casa Matemática Oaxaca (CMO), Oaxaca, Mexico.
7/6/2018	Workshop "Computational strategies for large-scale statistical data analysis" at the International Centre for Mathematical Sciences, Edinburgh, United Kingdom. http://www.icms.org.uk/computationalstrategies.php
7/30/2018	The 2018 Joint Statistical Meeting, Vancouver, CANADA.
6/10/2019	A Joint Meeting in the GREAT Smart Cities Institute/CIVL, Hong Kong.
6/18/2019	Third International Conference on Mathematics of Data Science, Hong Kong.
6/20/2019	Workshop on Advances of Complex Data Analysis, Xi-An, China.
8/12/2019	Opening workshop of the SAMSI Deep Learning program, Duke University, Durham, NC. https://www.samsi.info/programs-and-activities/semester-long-programs/2019-fall-semester-program-on-deep-learning/opening-workshop-august-12-16-2019/
9/26/2019	International Workshop on Complex Data and Statistical Learning, Shanghai Center for Mathematical Sciences, Fudan University, Shanghai, China.
10/14/2019	Georgia Statistics Day, Georgia Tech, Atlanta, GA. http://pwp.gatech.edu/gsd2019/
10/22/2019	INFORMS annual meeting, Seattle, WA.
10/29/2019	2019 NSF EPSCoR National Conference, University of South Carolina, Columbia, SC. https://nsfepscor2019.org/
10/30/2019	2019 Sustainability Showcase, Georgia Tech, Atlanta, GA. https://sustainability.gatech.edu/showcase
11/15/2019	The Energy Systems and Optimization Workshop, Georgia Tech, Atlanta, GA. http://pwp.gatech.edu/eso-2019/
3/5-6/2020	NSF Workshop ML+DS4PES, NSF Headquarter, Alexandria, VA, https://sites.google.com/umn.edu/ml-ds4pes/technical-program
4/23-24/2020	NSF TRIPODS Virtual PI Meeting, Online meeting.
8/6/2020	Joint Statistics Meeting, Online.
7/11/2021	63rd ISI World Statistics Congress, Virtual. https://www.isi2021.org/
8/11/2021	Joint Statistics Meeting, Virtual.
10/8/2021	International Conference on Advances in Interdisciplinary Statistics and Combinatorics, Virtual. https://sites.google.com/uncg.edu/aisc2021

D3 Conference and Workshop Presentations

5/29/2016	The International Forum on Statistics, Renmin University, Beijing, China. http://stat2016.china-r.org/
10/9/2017	Georgia Statistics Day 2017, Emory University, Atlanta, Georgia. https://www.sph.emory.edu/departments/bios/gsd2017/

D4 Invited Seminar Presentations

1/14/2015	Department of SEEM, The City University of Hong Kong, Hong Kong.

2/17/2015	Department of Statistics & Probability, Michigan State University, East Lansing, MI.
2/20/2015	Department of Statistics, Fox School of Business, Temple University, Philadelphia, PA.
3/2/2015	Department of Statistics, University of California, Riverside, CA.
4/3/2015	Department of Mathematics & Statistics, University of Maryland at Baltimore County, Baltimore, MD.
5/12/2015	Department of Mathematics & Statistics, University of Maryland, College Park, MD.
6/24/2015	School of Mathematics & Statistics, Beijing Institute of Technology, China.
11/18/2015	Department of Statistics, University of Missouri-Columbia, MO.
2/18/2016	Department of Statistics, University of Central Florida, Orlando, FL.
4/6/2016	Department of Statistics, University of California, Davis, CA.
5/30/2016	Department of Industrial Engineering, Tsinghua University, Beijing, China. http://www.ie.tsinghua.edu.cn/
6/11/2016	College of electronic and electrical engineering, Shanghai University of Engineering Science, Shanghai, China. http://seee.sues.edu.cn/
6/15/2016	Center for Statistical Science, Tsinghua University, Beijing, China. http://www.stat.tsinghua.edu.cn/
7/1/2016	Laboratory of Industrial Engineering, School of Mechanical Engineering, Beijing Institute of Technology, Beijing, China.
7/15/2016	Department of Supply Chain Management, School of Economics and Management, Beijing Jiaotong University, Beijing, China.
8/23/2016	Department of Applied Mathematics, School of Mathematics and Statistics, University of Science and Technology in China, Hefei, China.
11/11/2016	Department of Statistics, North Carolina State University, Raleigh, NC. "Grants Workshop."
12/22/2016	Shanghai University of Engineering Sciences, Shanghai, China. "Data Science and 2016 USA Presidential Election."
3/30/2017	Department of Biostatistics, University of North Carolina, Chapel Hill, NC. http://sph.unc.edu/bios/bios-seminars/
5/26/2017	Department of Industrial Systems Engineering & Management, National University of Singapore, Singapore.
10/5/2017	The Department of Statistics and Actuarial Science, University of Waterloo, Waterloo, Canada.
10/27/2017	The Department of Mathematics, University of Houston, Houston, TX.
11/10/2017	The Department of Mathematics, University of Alabama, Tuscaloosa, AL.
11/16/2017	The Department of Mathematics & Statistics, Old Dominion University, Norfolk, VA.
11/30/2017	The Alibaba Groups, Seattle, WA.
12/7/2017	Chinese University of Hong Kong (Shenzhen), Shenzhen, China.
12/8/2017	School of Management, Shenzhen University, Shenzhen, China.

12/11/2017	Department of Systems Engineering and Engineering Management, City University of Hong Kong, Hong Kong, China.
4/2/2018	Department of Mathematics, University of Arizona, Tucson, AZ.
6/15/2018	Department of Industrial Systems Engineering and Management, National University of Singapore, Singapore.
6/28/2018	Department of Electronic Engineering, Shanghai Jiao Tong University, Shanghai, China.
7/16/2018	Department of Statistics, Purdue University, West Lafayette, IN.
8/24/2018	Ants Finance, Alibaba, Hangzhou, China.
8/27/2018	Department of Biostatistics, Shanghai Jiaotong University, Shanghai, China.
10/29/2018	School of Mathematics and Statistics, Central University of Finance and Economics, Beijing, China.
3/11/2019	Institute of Data Engineering and Science, Georgia Tech, Atlanta, GA.
4/8/2019	School of Mathematics, Georgia Tech, Atlanta, GA.
4/24/2019	Joint Research Data Center, Central University of Finance and Economics, Beijing, China.
6/12/2019	Faculty of Business Administration, University of Mauca, Macau, China.
7/25/2019	SRIBD, The Chinese University of Hong Kong, Shenzhen, China.
9/12/2019	Grado Department of Industrial and Systems Engineering, Virginia Tech, Blacksburg, VA.
11/7/2019	Department of Mathematics, University of Mississippi, University, MS.
11/11/2019	Algorithms & Randomness Center (ARC), Georgia Tech, Atlanta, GA. http://arc.gatech.edu/node/352
5/22/2020	Online seminar, Central University of Finance and Economics, Beijing, China
12/3/2020	Theoretical and Applied Data Science Seminar, Iowa State University, https://tads.research.iastate.edu/theoretical-and-applied-data-science-seminar-xiaoming-huo
12/10/2021	International Centre for Mathematical Sciences, virtual, www.icms.org.uk/events/event/?id=1096

D5 Other Presentations

2/27/2015	Invited panelist. Workshop on Statistical Challenges in Assessing and Fostering the Reproducibility of Scientific Results, the National Academies' Committee on Applied and Theoretical Statistics (CATS), Washington, DC.
7/30/2015	Invited panelist. ICERM Workshop on Mathematics in Data Science, Providence, RI. https://icerm.brown.edu/topical_workshops/tw15-6-mds/
12/7/2019	2019 Yangtze River Delta International Forum, Shanghai University of Finance and Economics, China.

E Grants and Contracts

E1 As Principal Investigator

1. Source: **Conference Grant.** Various agencies including National Security Agent (**NSA**), Office of Naval Research (**ONR**), National Institute of Health/National Cancer Institute (**NIH/NCI**), National Science Foundation (**NSF**), and Institute of Mathematical Statistics (**IMS**).
   Duration: Jul. - Aug. 2001
   Amount: $64,600.00 (total)
   Title: Fifth New Researchers' Conference in Statistics and Probability (**NRC**)
   Notes: Victoria Chen was the original PI. P. Kvam and I were co-organizers.

2. Source: **GVU Seed Grant** from the Center of GVU, Georgia Tech.
   Duration: Aug. 2001 - Apr. 2002
   Amount: $\sim$ $15,000.00, one GRA for a year (shared equally with a faculty member in GVU)
   Title: Surface Representation and Compression with 3D "Beamlets."
   Collaborator: Andrzej Szymczak (PI)

3. Source: **DARPA**, Lockheed Martin. As a subcontract from Stanford U.
   Duration: Jan. 2, 2002 - Dec. 15, 2002
   Amount: $89,103.06 (for Dr. Huo only)
   Title: New Statistical Tools in Object Recognition and Classification

4. Source: National Science Foundation (**NSF**)
   Duration: Aug. 15, 2002 - Jul. 1, 2005
   Amount: $153,440.00 (for Dr. Huo only)
   Title: Collaborative Research: A Focused Research Group (FRG) on Multiscale Geometric Analysis – Theory, Tools, and Applications
   Collaborators: Emmanuel Candès (PI), David Donoho (PI), Peter Jones (PI), Vicent J. Martínez (participant), and Jean-Luc Starck (participant)

5. Source: National Science Foundation (**NSF**)
   Duration: Sep. 15, 2003 - Aug. 31, 2004
   Amount: $100,000.00 (mostly for Dr. Huo)
   Title: ACT SGER: Locating Sparse Events in High Speed Stream Data, with a Focus on Statistical Analysis
   Collaborator: Jeff C. F. Wu (co-PI)

6. Source: Insti. Pure & Appl. Math. (**IPAM**)
   Duration: Sep. 15, 2004 - Dec. 15, 2004
   Amount: $15,000.00 (for Dr. Huo only)
   Title: Participation of Multiscale Geometric Analysis program

7. Source: National Science Foundation (**NSF**)
   Duration: July 15, 2006 - June 30, 2009
   Amount: $95,000.00

Title: Statistical Problems in Detectability

8. Source: National Science Foundation (**NSF**)
   Duration: September 1, 2007 - August 31, 2010
   Amount: $\$248,741.00$
   Title: Fundamentals and Applications of Connect-the-Dots Methods
   Collaborator: Craig A. Tovey (co-PI)

9. Source: Sandia Natl Labs
   Duration: July 1, 2008 - July 20, 2008
   Amount: $\$30,000.00$
   Title: Orthogonal Transforms Guided Optimal Measurement Sampling

10. Source: Sandia Natl Labs
    Duration: Dec. 4, 2008 - Aug. 19, 2009
    Amount: $\$17,000.00$
    Title: Orthogonal transforms guided optimal measurement sampling

11. Source: Sandia Natl Labs
    Duration: Dec. 14, 2009 - Sep. 30, 2010
    Amount: $\$23,000.00$
    Title: Orthogonal transforms to evaluate and qualify measurement uncertainty

12. Source: NSF/Statistics
    Duration: Aug. 1, 2011 - Jul. 30, 2014
    Amount: $\$140,000.00$
    Title: Achieving spatial adaptation via inconstant penalization: theory and computational strategies
13. Source: GT/Institute for Data and HPC (IDH), Big data seed grant program
    Duration: Jan. 1, 2013 - Jul. 30, 2013
    Amount: $\$15,000.00$
    Title: High-throughput image analysis models and tools for screening of *C. elegans* lipid droplet storage genes
14. Source: SAMSI, Research Triangle Park, NC
    Duration: Sep., 2016 - Dec., 2016
    Amount: $\sim \$31,878.78$
    Title: Participation in the optimization program

15. Source: National Science Foundation (DMS-1637436)
    Duration: Apr. 1, 2016 - Mar. 31, 2017
    Amount: $\$99,998.00$
    Title: Workshop on the Algorithmic, Mathematical, and Statistical Foundations of Data Science
16. Source: National Science Foundation (DMS-1613152)
    Duration: Sept. 1, 2016 - Aug. 31, 2019
    Amount: $\$475,000.00$

Title: Computational and Communication Efficient Distributed Statistical Methods with Theoretical Guarantees

17. Source: Georgia Tech EVP for Research Office-Sponsored Programs
Duration: Febr. 1, 2017 - Mar. 31, 2017
Amount: $3,000.00
Title: A proposal working group in response to NSF solicitation on Transdisciplinary Research in Principles of Data Science Phase I (TRIPODS)

18. Source: Air Force Research Lab Summer Faculty Fellowship Program
Duration: June 5, 2017 - Aug. 18, 2017
Amount: $25,900.00. $1900/week stipend for 11 weeks; $70/weekday daily expense allowance for about 50 days; $1500 relocation/travel costs.
Title: Distributed inference and missing information recovery

19. Source: National Science Foundation (CCF-1740776)
Duration: Sept. 1, 2017 - Aug. 31, 2020
Amount: $1,517,342.00
Title: Transdisciplinary Research Institute for Advancing Data Science (TRIAD)

20. Source: National Science Foundation (CHE-1848701)
Duration: Sept. 1, 2018 - Aug. 31, 2019
Amount: $225,450.00
Title: CHE/DMS Innovation Lab: Learning the Power of Data in Chemistry

21. Title of Project: Theoretical guarantees of statistical methodologies involving nonconvex objectives and the difference-of-convex algorithms
Agency/Company: National Science Foundation (**NSF**)
Total Dollar Amount: $300,000
Role: PI
Collaborators: None
Period of Contract: 8/1/2020 - 7/31/2023

E2 As Co-Principal Investigator

22. Source: National Science Foundation (**NSF**), co-PI
Duration: Jan. 1, 2005 - Dec. 31, 2005
Amount: $75,000.00 (my share: $1,500.00 summer salary)
Title: SGER: Multi-scale Modeling for Homeland Security and Supply-chain Logistics Reliability
Collaborators: J.-C. Lu (PI), J. C. F. Wu, P. Kvam, C. White, and E. Erera (co-PIs)

23. Source: **NSF**, co-PI
Duration: October 1, 2008 - September 31, 2011
Amount: $1,839,297.00, ($758,297 for Georgia Tech)
Title: Collaborative research: CT-L: CLEANSE: cross-layer large-scale efficient analysis of network activities to secure the internet

Collaborator: Wenke Lee (PI, GT CoC)

24. Source: NSF, co-PI
    Duration: Aug. 1, 2009 - Jul. 30, 2011
    Amount: $185,000.00
    Title: Multiscale, beamlet-based data processing for the solution of shortest-path problems with applications to embedded vehicle autonomy
    Collaborator: Panagiotis Tsiotras (PI, GT AE)

25. Title of Project: Seminar Series of the Center for Statistical Science at Georgia Tech
    Agency/Company: Georgia Tech – Executive Vice President for Research Office
    Total Dollar Amount: $4,000.00
    Role: co-PI or PI: co-PI
    Collaborators: Yajun Mei (PI)
    Period of Contract: 1/1/2020 - 7/31/2020

26. Title of Project: CPS: medium: collaborative research: robust and intelligent optimization of controlled-environment agriculture system for food productivity and nutritional security
    Agency/Company: United States Department of Agriculture, National Institute of Food and Agriculture
    Total Dollar Amount: $613,051.00
    Role: co-PI
    Collaborators: Guanghui Lan (PI), Yongshen Chen
    Period of Contract: 6/1/2020 - 5/31/2023
    Candidate's Share: 0.5 month salary

E3 As Senior Personnel or Contributor

E4 Pending Proposals

1.

F Other Scholarly and Creative Accomplishments

Nothing to report.

G Societal and Policy Impacts

- Leading Academic Data Leaders 2021. https://www.cdomagazine.tech

See more in Section D5.

H Other Professional Activities

- Consulting to various companies, such as BP, ZingBox, etc.
- Visiting Xu Teli chair professorship at BIT, 2012-2015
- "Shanghai Distinguished Overseas Professor" with School of Electronic and Electrical Engineering at Shanghai University of Engineering Science, 2016

V Education

A Course Taught

Courses taught in the past few years.

Undergraduate Courses

Sem., Yr.	Course Number	Course Title	# of Students
Fall, 2010	ISyE2028A	Basic Stat. Meth.	66
Fall, 2011	ISYE4106A	Senior Design	28
Spr., 2012	ISyE2028B	Basic Stat. Meth.	78
Fall, 2012	ISyE4106XH	Senior Design	28
Fall, 2015	ISyE2028B	Basic Stat. Meth.	69
Spr., 2016	ISyE2028C	Basic Stat. Meth.	44
Sum., 2019	ISyE4803R1	Special Topics.	35

Graduate Courses

Sem., Yr.	Course Number	Course Title	# of Students
Spr., 2011	ISyE6416A	Comp. Stat.	26
Spr., 2011	ISyE6783A	Finan. Data Analy.	44
Spr., 2011	Math6783A	Finan. Data Analy.	15
Spr., 2012	ISyE6416A	Comp. Stat.	39
Fall, 2012	ISyE8900XH	Special Problems	1
Spr., 2013	ISyE6416A	Comp. Stat.	26
Spr., 2013	ISyE6783A	Finan. Data Analy.	45
Spr., 2013	Math6783A	Finan. Data Analy.	10
Spr., 2013	ISyE6783Q	Finan. Data Analy.	4
Sum., 2013	ISyE6783SH	Finan. Data Analy.	24
Sum., 2013	ISyE6783Q	Finan. Data Analy.	11
Spr., 2016	ISyE6783A	Finan. Data Analy.	33
Spr., 2016	ISyE6783Q	Finan. Data Analy.	3
Spr., 2016	Math6783A	Finan. Data Analy.	19
Spr., 2016	Math6783Q	Finan. Data Analy.	1
Spr., 2017	ISyE6783A	Finan. Data Analy.	33
Spr., 2017	ISyE6783Q	Finan. Data Analy.	1
Spr., 2017	Math6783A	Finan. Data Analy.	12
Spr., 2017	Math6783Q	Finan. Data Analy.	5
Spr., 2017	ISyE7401A	Adv Stat Modeling	22

Graduate Courses

Sem., Yr.	Course Number	Course Title	# of Students
Spr., 2018	ISyE6416A	Comp Stat	47
Spr., 2018	ISyE6783QCF	Finan. Data Analy.	33
Spr., 2018	Math6783A	Finan. Data Analy.	16
Spr., 2019	ISyE6783QCF	Finan. Data Analy.	24
Spr., 2019	Math6783A	Finan. Data Analy.	29
Spr., 2019	ISyE6402A	Time Series Analy.	25
Spr., 2019	ISyE6402MSA	Time Series Analy.	23

B Individual Student Guidance

Redacted for privacy protection.

C Educational Innovations and Other Contributions

C1 Course Development

1. Co-developed a new Ph.D elective: ISyE 8801, Wavelets. It was taught once as a PhD elective in Spring 2001, jointly with Professor B. Vidakovic. Class size was 8.

2. Designed a new course: ISyE 6416, Computational Statistics (now regularly taught at ISyE).

VI Service

A Professional Contributions

A1 Editorial Board Memberships

1. Specialty Chief Editor in Frontiers in Applied Mathematics and Statistics - Statistics, April 2021 - present

2. Editorial board member, book series entitled "Progress in Data Science," World Scientific Press, August 2018 - present

3. Associate Editor (AE), Technometrics, October 2016 - now.

4. Associate Editor (AE), Frontiers in Applied Mathematics and Statistics: Mathematics of Computation and Data Science, March 2017 - April 2021.

5. Journal of the Chinese Institute of Industrial Engineers (JCIIE), January 2007-July 2011.

6. Review Editor in the Editorial Board of Mathematics of Computation and Data Science, a specialty of Frontiers in Applied Mathematics and Statistics, 2015 - March 2017.

7. Mathematics Reviews, 2002–2004.

8. Guest editor, a special issue on "Emergent Techniques and Applications for Big Visual Data," International Journal of Digital Multimedia Broadcasting. 2017.

A2 Society Offices, Activities, and Membership

Committee or council member in professional organizations

1. IMS New Researchers Committee, November 2002-August 2005.
2. INFORMS Data Mining Section council member, November 2003-November 2004.
3. INFORMS Data Mining Section Vice Chair/Chair-Elect/Chair, Nov. 2007-Nov. 2009.

A3 Organization and Chairmanship of Technical Sessions, Workshops and Conferences

Cluster chair/co-chair for the following conference

- Data Mining cluster, INFORMS Annual Meeting 2008 & 2009. Co-chair: Ms. Rong Duan (AT&T).

Session chair or organizer for the following conferences

1. *Data mining,* Spring Research Conference, Ann Arbor, MI, May 20-22, 2002.
2. *Data mining methods,* INFORMS Annual Meeting, San Jose, CA, November, 2002.
3. *Data mining methods,* INFORMS Annual Meeting, Atlanta, GA, October, 2003.
4. *Multiscale methods in statistics,* Joint Statistical Meeting, San Francisco, CA, August, 2003.
5. *New researchers' conference,* Toronto, Canada, August, 2004.
6. GT sparsity workshop in 2008.
7. Lead a roundtable discussion on GA Statistics Day, University of Georgia, October 30, 2015. http://stat.uga.edu/events/GaStatDay15
8. Organizer. Theoretical Foundations of Data Science: Algorithmic, Mathematical, and Statistical (TFoDS), Thursday, April 28 - Saturday, April 30, 2016. http://www.cs.rpi.edu/TFoDS/
9. Organizer. SAMSI Workshop on Distributed and Parallel Data Analysis (DPDA), September 21-23, 2016. https://www.samsi.info/workshop-distributed-parallel-data-analysis-dpda-september-21-23-2016/
10. Organizer. SAMSI Workshop on the Interface of Statistics and Optimization (WISO), February 8-10, 2017.
11. Organizer. First International Conference on the Theoretical Foundation of the Data Science, July 3 - 5, 2017, Beijing Institute of Technology, Beijing, China. http://school.gsfarm.com.cn/
12. Organizer. Workshop on "Recent Developments in Statistical Theory and Methods Based on Distributed Computing" in May 20-25, 2018 at CMO-BIRS (Casa Matematica Oaxaca - Banff International Research Station, www.birs.ca/cmo).
13. Organizer. Workshop on "Theoretical Foundation of Deep Learning 2018," October 8 - 10, 2018, Georgia Tech, Atlanta, GA. http://pwp.gatech.edu/fdl-2018/.

14. Co-organizer. Innovation Lab titled "NSF CHE/DMS Innovation Lab: Learning the Power of Data in Chemistry" that took place in Airlie House (https://airlie.com/), Washington, DC, from December 17-21, 2018. https://hub.ki/groups/datainspiredchemistry.

Member of the Program Committee for the following:

1. BioSecure, Taipei, September 24-25, 2009. `http://ai.arizona.edu/BIO2009/`.
2. ICSA applied statistics symposium 2016; GSU, Atlanta, GA.
3. Scientific Committee chair, Georgia Statistics Day, October 2016, Georgia Tech.
4. AAAI-17 (31st AAAI Conference on Artificial Intelligence), February 4-9, 2017 in San Francisco, California, USA.
5. Organizing committee of Recent Advances in Statistical Analysis of Imaging Data, December 4-5, 2020, https://ani.stat.fsu.edu/GFDW/

Local organizing committee for the following conference (workshop)

- *New Researchers' Conference*, with Victoria Chen and Paul Kvam, July, 2001.

A4 Technical Journal or Conference Referee Activities

- Reviewed papers for $\geq$ 28 journals. (Average is about 20 per year. Quits counting since 2006. Full list is available under request.)

A5 Proposal Panels and Reviews

1. NSF panel, February 2003, May 2010, February, November 2012, and February 2017.
2. NSF external reviewer, 2004, 2005.
3. Louisiana Board of Regents, 2003, 2005.
4. Israeli Science Foundation's FIRST (Focal Initiatives in Research in Science and Technology) program, April 2007.
5. Reviewer for University of Wisconsin-Milwaukee on the Research Growth Initiative, Jan. 2010.
6. Review for the Icelandic Research Fund, 2014.
7. NSF Graduate Research Fellowship Program panel, January 2016, 2017, 2019.
8. DOE review panel, 2020

A6 Other Involvement

- Panelist on 2011 INFORMS annual meeting Data Mining best student paper competition.
- IEEE Senior Member Review Panel Meeting in Atlanta, GA, April 23, 2016.

B Public and Community Service

2003-2010 *Georgia Tech*, faculty advisor of the badminton club.

C Institute Contributions

C1 Institute Committee Service

1. Provost's Emerging Leadership program, August 2018 - May 2019.
   http://www.provost.gatech.edu/emerging-leaders.
2. Fellow, Provost's Fellows for Faculty Development (PFFD) program for January-December, 2019.

C2 College Committee Service

1. Fifth year review committee of a school chair in 2019.

C3 School Committee Service

1. ISyE space committee, 2002 – August 2003.
2. ISyE PhD statistics comprehensive exam committee, School of ISyE.
   (a) Fall 2001-Spring 2002,
   (b) Fall 2007-Spring 2008 (chair),
   (c) Fall 2010-Spring 2011 (chair).
3. ISyE undergraduate committee, July 2006–June 2008.
4. ISyE faculty mentoring process committee, Summer & Fall, 2007.
5. Statistics seminar chair,
   (a) Fall 2007–Spring 2008,
   (b) Spring 2013.
6. ISyE Advisory committee, August 2018 - July 2020.

C4 Program Development: Research

- Advisory board for Institute for Data and HPC (IDH), data area, November 2010.
- Memberships in Professional Organizations: IEEE (Signal Processing), INFORMS (QSR, DM), ASA, IMS.

C5 Program Development: Academic

1. Chair of the award committee on the Georgia Tech Sigma Xi Best M.S. Thesis Award, 2006.
2. Judge in the 2009 Graduate Research Symposium, February 26, 2009.
3. Judge, Georgia Tech Research & Innovation Conference (GTRIC), February 8, 2011.
4. Judge, InVenture Prize at Georgia Tech. January 19, 2012, January 26, 2022.
5. Poster Judges, Graduate SGA the annual Career Research and Innovation Development Conference (CRIDC) (http://sga.gatech.edu/g/cridc-2018/), Thursday, February 8, 2018, 3-5pm.
6. Judge in the 15th Annual Undergraduate Research Symposium on Thursday, April 22, 2021.

C6 Other Institute Service Contributions

1. Judge for Hacklytics, Data Science @ Georgia Tech's datathon, https://hacklytics.io/, February 22-23, 2020