

Xiaoming Huo (Professor)

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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/Visits

- 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 field 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 ¹

A. Published Books and Parts of Books

A1. Books

A2. Refereed Book Chapters

- B1. ² 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 **Xuelel 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.

¹Names in boldface are my advisees (i.e., post-docs, graduate or undergraduate students).

²B for book.

- 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.

B. Refereed Publications

B1. Journal Papers Published or In Press

- J1. ³David 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.

³J for Journal.

- 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. **Xuelel 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 **Xuelel 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. **Xuelel 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 **Xuelel 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 Stat-Ref: 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.

B2. Conference Papers Refereed ⁴

- C1. ⁵ 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.

⁴Full papers are required for reviewing, with at least two anonymous referees.

⁵C for Conference.

- 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. **Xuelel 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.

B3. Other Refereed Material ⁶

- W1. ⁷ 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.

⁶The following papers are reviewed by fewer than two anonymous referees, or not reviewed.

⁷W for other refereed material.

- 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.)
- 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://iweb.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.

C. Other Publications and Creative Products

D. Presentations⁸**D1. Keynote Address 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://bigdataui.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.

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>

⁸In past five years.

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

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 Macau, Macau, China.
- 7/25/2019 SRIBD, The Chinese University of Hong Kong, Shenzhen, China.

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/

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: ~ \$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: ~ \$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

E2. As Co-Principal Investigator

21. 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)
22. 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)

23. 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)

F. Other Scholarly and Creative Accomplishments

Nothing to report.

G. Societal and Policy Impacts

See IV 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. Teaching

A. Course Taught ⁹

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

⁹In the past five years.

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

B. Individual Student Guidance**B1. PhD Students****B.1.a Graduated**

1. Ms. Jihong Chen, PhD. Started in Fall 2000; passed PhD comprehensive exam in Fall 2001; presented proposal on February 6, 2004; passed defense on June 22, 2004; thesis title: “Sparse modelling in classification, compression, and detection;” graduated in Summer 2004; first position: PostDoc at Biomedical Imaging Technology Center, Emory University; graduate work related publications: J5, J12, J15, C7, C9, C10, C11, W5, W6, W7.
2. Ms. Xuelei (Sherry) Ni, PhD. Started in Fall 2002; passed PhD comprehensive exam in December 2003; presented proposal on April 28, 2005; passed defense on November 1, 2005; thesis title: “New results in detection, estimation, and model selection”; graduated in Spring 2006; first position: Choice Point and Assistant Professor at Kennesaw State University; graduate work related publications: B3, B4, J18, J19, J21, J23, C13.
3. Ms. Jie Chen, PhD. Started in Fall 2003; passed PhD comprehensive exam in January 2005; presented proposal on April 30, 2007; passed defense on October 26, 2007; thesis title: “Some new theoretical results & applications in dimensional reduction”; graduated in Fall 2007; first position: Bank of America; graduate work related publications: J17, J20, J24, J26, C12.
4. Mr. Andrew K. Smith, PhD. Started in Fall 2003; passed PhD comprehensive exam in January 2005; presented proposal on October 19, 2007; passed defense on March 21, 2008; thesis title: “New results in dimension reduction and model selection”; graduated in Spring 2008; first position: American Express; graduate work related publications: B4, J22, C14.
5. Ms. Heeyoung Kim, PhD. Started in Fall 2006, passed PhD comprehensive exam in August 2007; presented proposal on September 3, 2010; passed defense on April 22, 2011; thesis title: “Statistical methods for function estimation and classification”; graduated in Summer 2011; first position: AT&T labs; graduate work related publications: J28.

6. Mr. Yibiao Lu, PhD. Started in Fall 2008, passed PhD comprehensive exam in September 2009 in statistics; presented proposal on January 24, 2012; passed defense on April 26, 2012; thesis title: “Statistical methods with applications to machine learning and artificial intelligence”; graduated in Summer 2012; first position: analyst in Barclays; graduate work related publications: J27, J29, C19.
7. Mr. Kai Ni, PhD. Jointly with professor Vladimir Koltchinskii (Mathematics), started in Fall 2007, presented proposal on December 2, 2010; passed defense on March 26, 2013; thesis title: “The asymptotic rate of the length of the longest significant chain with good continuation in Bernoulli net and its applications in filamentary detection”; graduated in Spring 2013; first position: IBM; graduate work related publications: to be added.
8. Mr. Min Kyu Sim, PhD. Jointly with Shijie Deng (primary), started in Fall 2009, passed PhD comprehensive exam in Spring 2010 in EDA, presented proposal on February 28, 2014; passed defense on September 30, 2014; thesis title: “Empirical findings in asset price dynamics revealed by quantitative modelling”; graduated in Fall 2014; first position: Samsung Group; graduate work related publications: to be added.
9. Mr. Zhi Han, PhD. Jointly with Shijie Deng (primary), started in Fall 2008, passed PhD comprehensive exam in Fall 2009 in OR, presented proposal on August 9, 2013, passed defense on August 7, 2015, thesis title: “Applications of stochastic control and statistical inference in macroeconomics and high-dimensional data”; graduated in Summer 2015; first position: JP Morgan.
10. Mr. Cheng Huang, PhD. Started in Fall 2012, passed PhD comprehensive exam in Fall 2013 in Statistics, presented proposal on February 15, 2017, passed defense on May 5, 2017, thesis title: “Some computationally efficient methods in statistics and their applications in parameter estimation and hypotheses testing”, graduated in Summer 2017, first position: Citadel.
11. Ms. Shanshan Cao, PhD. Started PhD in Fall 2014, started to work with me in Spring 2016, passed PhD comprehensive exam in Fall 2015 in Statistics, presented proposal on November 16, 2018, passed defense on May 3, 2019, thesis title: “Statistical learning with regularizations: theory and applications”, graduated in Spring 2019, first position: Eli Lilly and Company.

B1.b In Process

1. Ms. Chuanping Yu, PhD
Started in Fall 2015, passed PhD comprehensive exam in Fall 2016 in Statistics, ...
2. Ms. Yujie Zhao, PhD
Started in Fall 2017, passed PhD comprehensive exam in Spring 2018 in Statistics, ...
3. Mr. Namjoon Suh, PhD
Started in Fall 2018,
4. Mr. Hyunouk (Andy) Ko, PhD
Started in Fall 2018, passed PhD comprehensive exam in Spring 2019 in Statistics, ...
5. Ms. Yiling Luo, PhD
Started in Fall 2019,

B2 M.S. Students**B2.a Graduated with M.S. Thesis**

1. Mr. Dhiraj M. Ratnani (2003), title of M.S. project: “A case study of data mining using a SIEMENS dataset.”
2. Mr. Zhiling Wang (2003), title of M.S. project: “Association rules in an office products distribution center;” first position: a music instrument company in the Boston area.
3. Mr. Nakin Sriobchoey (2004), title of M.S. project: “A software package for support vector trees;” first position: Merck & Co as a decision science analyst.
4. Mr. Simon Ulbrich (2010), “Optimizing the handling of correlated products in a warehouse.”

B3. Undergraduate Students¹⁰

1. Mr. Robert Grant, Fall 2012, “Research on the Use and Understanding of the Contextual Bandit Algorithm”
2. Mr. Yuchen (Richard) Zheng, Fall 2012, “An interpretation of Auction Behavior with an Equilibrium Model”
3. Ms. Thao Dinh, Fall 2018, “MNIST with Different Neural Networks”

B4. Service on thesis or dissertation committees**B4.a. Internal**

¹⁰Undergraduate research taken as a registered course with me in a semester.

Student Name	School	Advisor	Proposal Date	Defense Date
Mr. Woojin Chang	ISyE		-	04/24/2002
Mr. Yao Lin	ME		08/27/2002	-
Mr. Ghassan Al-Regib	ECE		-	06/27/2003
Mr. Bahadir Gunturk	ECE		-	08/15/2003
Mr. Yen-chi Lee	ECE		-	09/29/2003
Ms. Hua Huang	Poly., Tex. & Fib.			01/23/2004
Ms. Alisa Kongthon	ISyE		09/04/2003	03/16/2004
Mr. Myong-Kee Jeong	ISyE	JC Lu	12/17/2002	03/26/2004
Mr. Raviv Raich	ECE		-	03/31/2004
Mr. Uk Jung	ISyE		07/25/2003	06/29/2004
Mr. Bo Gao	Civil & Env. Eng.		-	07/23/2004
Mr. Seoung Bum Kim	ISyE	Kwok Tsui	11/07/2003	12/03/2004
Mr. Sashidhar Dandamudi	ISyE		04/29/2004	-
Mr. Bin Shi	ISyE	Brani Vidakovic	-	04/5/2005
Mr. Ilya Lavrik	ISyE	Brani Vidakovic	08/03/2005	11/22/2005
Mr. Israfil Bahceci	ECE	Yucel Altunbasak	-	8/24/2005
Mr. Hyungjoon Kim	ECE	Yucel Altunbasak	-	3/30/2007
Mr. Xinwei Deng	ISyE	Jeff Wu	-	6/18/2009
Mr. Sze Ho Tang	ECE	Russell Mersereau	-	11/3/2008
Mr. Sky Lee	ISyE	Brani Vidakovic	9/28/2009	06/25/2010
Ms. Lingyan Ruan	ISyE	Ming Yuan	11/18/2009	11/1/2010
Ms. Soyoun Park	ISyE	JC Lu	-	9/7/2010
Ms. Seonghye Jeon	ISyE	Brani Vidakovic	1/21/2011	03/26/2012
Mr. Norbert Remenyi	ISyE	Brani Vidakovic	5/12/2011	11/1/2012
Mr. Nan Lu	Math	Chongchun Zeng	-	6/16/2011
Mr. Joongsup (Jay) Lee	ISyE	Seong-Hee Kim	-	8/5/2011
Mr. Osman G Sezer	ECE	Yucel Altunbasak	-	8/15/2011
Mr. Yun Gong	Math	Liang Peng	-	11/16/2011
Mr. Ruodu Wang	Math	Liang Peng	-	4/23/2012
Mr. Huizhi Xie	ISyE	Jeff Wu	12/06/2011	4/20/2012
Mr. Jeamin Shin	BME(GT/Emory)	Xiaoping Hu	-	5/29/2012
Ms. Huijun Feng	Math	Liang Peng	-	12/04/2012

Student Name	School	Advisor	Proposal Date	Defense Date
Mr. Wei Huang	CE	Yan Wang	-	02/19/2013
Mr. Ke Zhou	CSE	Hongyuan Zha	1/24/2013	-
Mr. Ki Sueng Choi	BME	Xiaoping Hu	2/14/2013	-
Ms. Sue B. Reynolds	CDC	Dave Goldsman	3/1/2013	4/1/2015
Ms. Namin Jeong	ME	David W. Rosen	11/25/2014	04/20/2015
Ms. Huizhu Wang	ISyE	Seong-Hee Kim	1/23/2013	2/25/2015
Ms. Xiuli Sun	Econ	Haizheng Li	-	3/9/2015
Mr. Arvind Krishna	ISyE	Roshan Vengazhiyil	4/1/2019	-
Ms. Chen Feng	ISyE	Brani Vidakovic	11/7/2018	5/3/2019
Jiangning Chen	Math	Matzinger and Lounici	-	4/8/2019
Mr. Li-Hsiang Lin	ISyE	Jeff Wu	4/15/2019	-

B4.b. External

Student Name	University	Advisor	Dates
Mr. Dianpeng Wang	Beijing Institute of Technology	Yubin Tian	5/19/2016
Ms. Lulu Bao	Tsinghua University	Kaibo Wang	5/30/2016

C. Other Teaching Activities**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. Editorial board member, book series entitled “Progress in Data Science,” World Scientific Press, August 2018 - present
2. Associate Editor (AE), Technometrics, October 2016 - now.
3. Associate Editor (AE), Frontiers in Applied Mathematics and Statistics: Mathematics of Computation and Data Science, March 2017 - present.
4. Journal of the Chinese Institute of Industrial Engineers (JCIIE), January 2007-July 2011.
5. 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.
6. Mathematics Reviews, 2002–2004.
7. 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/BI02009/>.
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.

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 ≥ 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.

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

C2. College Committee Service

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.
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.