

## Xiaoming Huo (Professor)

October 19, 2014

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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

- 8/2013–present* *National Science Foundation*, Arlington VA.  
Program Director:
  - Statistics
  - Computational and Data-enabled Science & Engineering [big data]
- 8/2012–present* *School of Industrial & Systems Engineering, Georgia Institute of Technology*.  
Professor
- 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)
- 8/1999–12/2005* *School of Industrial & Systems Engineering, Georgia Institute of Technology*.  
Assistant Professor

### III. Teaching

#### Individual Student Guidance

PhD students (graduated): Jihong Chen, Xuelei (Sherry) Ni, Jie Chen, Andrew K. Smith, Heeyoung Kim, Yibiao Lu, Kai Ni (co-advise), and Min Kyu Sim (co-advise).

M.S. students advised: Dhiraj M. Ratnani (2003), Zhiling Wang (2003), Nakin Sriobchoey (2004), and Simon Ulbrich (2010).

## IV. Scholarly Accomplishments

### A. Published Books and Parts of Books

- 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.

### B. Refereed Publications

#### B-1. Journal Papers Published or In Press:

- 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, pp. 774-779 DOI.
- J33. Heeyoung Kim, Xiaoming Huo, and Jianjun Shi (2014). A single interval based classifier. *Annals of Operations Research*, 216 (1): 307-325.  
<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.

## B-2. Working/Submitted/Under Revision Papers

Available under request.

## B-3. Conference Papers Refereed <sup>1</sup>

- 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.

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<sup>1</sup>Full papers are required for reviewing, with at least two anonymous referees (see Instructions for Curriculum Vitae from College of Engineering, Georgia Institute of Technology).

- 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](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.

## C. Other Publications

### C-1. Conference Papers and Reports <sup>2</sup>

- W1. 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.

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<sup>2</sup>The following papers are reviewed by fewer than two anonymous referees, or not reviewed at all. This complies with the aforementioned Instructions for Curriculum Vitae.

- 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.)
- 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.



## D. Presentations in Past Three Years

2012:

- Feb. 23* Invited seminar. *BP America*, Houston, TX
- Mar. 16* Invited seminar. *Department of Mathematics and Statistics*, York University, Toronto, ON, Canada
- May. 5* Invited talk. *Workshop on Biostatistics and Bioinformatics*, Georgia State University, Atlanta, GA
- May. 31* Invited talk. *Workshop on Perspectives on High-dimensional Data Analysis*, Centre de recherches mathématiques (CRM) of Montreal, Canada
- Jun. 5* Invited talk. *Conference on Statistical Learning and Data Mining*, Rackham Graduate School, University of Michigan, Ann Arbor, MI
- Jun. 11* Invited seminar. *Jiangxi University of Finance & Economics*, Nanchang, China
- Jun. 13* Invited seminar. *School of Business & Economy and Aerospace Research Center, HUST*, Wuhan, China
- Jun. 14* Invited seminar. *School of Economics*, Wuhan University of Technology, Wuhan, China
- Jun. 15-29* Seminar series. *School of Mathematics*, Beijing Institute of Technology, Beijing, China
- Jun. 27* Invited seminar. *College of Management and Economics*, Tianjin University.
- Jun. 28* Invited seminar. *Center of Statistics*, Beijing University.
- Jul. 1* Invited seminar. *College of Mathematics*, University of Science & Technology of China.
- Aug. 8* Invited talk. *SAMSI program on Computational Advertising*, Research Triangle Park, NC.
- Dec. 17* Invited talk. *School of ECE, Research group on video processing*, Shanghai Jiaotong University, China.
- Dec. 18* Invited talk. *School of Business, Department of Statistics*, Fudan University, Shanghai, China.

2013:

- Jan. 4-8* Invited talk. *Tsinghua-Sanya forum*, Sanya, China.
- Feb. 28* Invited seminar talk. *Emory University, Biostatistics*, Atlanta, GA
- Mar. 22* Invited seminar talk. *Florida State University, Statistics*, Tallahassee, FL
- Apr. 15* Invited talk. *Georgia Tech. Center of Data Analytics Workshop 2013*.
- Jun. 3* Invited talk. *Jiangxi University of Finance and Economics, School of Information Technology*, Nanchang, China.
- Jun. 5* Invited talk. *East China Normal University, School of Finance and Statistics*, Shanghai, China.
- Jun. 21* Invited talk. *Huazhong University of Science and Technology, Center of Aerospace Engineering*, Wuhan, China.
- Jun. 25* Invited talk. *Nankai University, Department of Statistics*, Tianjin, China.
- Jul. 2* Invited talk. *IMS-SWUFE International Conference on Statistics and Probability*, Chengdu, China.

- Jul. 8* Invited talk. *2nd International Symposium on System Informatics and Engineering (ISSIE 2013)*, Xi'an, China.
- Jul. 20* Invited plenary talk. *Workshop on compressive sensing*, NUDT, Changsha, China.
- Aug. 8* Invited talk. *Joint Statistical Meeting*, Montreal, Canada.
- Aug. 17* Invited keynote talk. *Workshop of System Informatics and Analytics, the 9th IEEE Conference on Automation Science and Engineering (IEEE CASE 2013)*, Madison, WI.
- Nov. 18* Invited seminar talk. *Department of Statistics, the Chinese University of Hong Kong*, Hong Kong.
- Nov. 20* Invited seminar talk. *Department of Systems Engineering and Engineering Management, City University of Hong Kong*, Hong Kong.
- Nov. 22* Invited seminar talk. *Department of Industrial Engineering and Logistics Management, Hong Kong University of Science and Technology*, Hong Kong.
- 2014:
- Feb. 13* Invited seminar talk. *Department of Statistics, University of Minnesota*. Minneapolis, MN.
- Feb. 26* Invited seminar talk. *Department of Statistics, Rutgers University*. New Brunswick, NJ.
- Mar. 5* Invited. *Data Science Symposium 2014*. NIST campus, Gaithersburg, MD.
- Apr. 4* Invited seminar talk. *Department of Statistics, George Washington University*. Washington DC.
- Apr. 10* Invited seminar talk. *Software and Systems Division (SSD), Information Technology Lab (ITL), NIST*. Gaithersburg, MD.
- May. 22* Invited seminar talk. *Science Research Institute, Shanghai Maritime University*. Shanghai, China.
- May 30.* Invited seminar talk. *Software Engineering Institute, East China Normal University*. Shanghai, China.
- Jun. 10* Invited talk. *ISBIS 2014 & SLDM meeting*, Durham, NC.
- Jun. 16* Invited talk. *ICSA/KISS 2014* Portland, OR.
- Aug. 5* Invited talk. *Joint Statistical Meeting*. Boston, MA.
- Aug. 28* Seminar talk. *School of ISyE, Georgia Institute of Technology*. Atlanta, GA.
- Sep. 2* Invited seminar talk. *Department of Statistics, University of Georgia*. Athens, GA.
- Sep. 10* Invited seminar talk. *Department of Statistics, University of Wisconsin*. Madison, WI.
- Oct. 17* Invited seminar talk. *Department of Systems Engineering and Operations Research, George Mason University*. Fairfax, VA.
- Oct. 21* Invited seminar talk. *Department of Operations Research and Financial Engineering, Princeton University*. Princeton, NJ.
- Nov. 7* Invited seminar talk. *Department of Statistics, North Carolina State University*. Raleigh, NC.
- Nov. 21* Invited seminar talk. *Department of Statistics, Texas A&M University*. College Station, TX.

## V. Service

### A. Professional Contributions

#### Services in Professional Societies

1. Editorial Board
  - Journal of the Chinese Institute of Industrial Engineers (JCIIE), January 2007-July 2011.
2. Cluster chair/co-chair for the following conference
  - Data Mining cluster, INFORMS Annual Meeting 2008 & 2009. Co-chair: Ms. Rong Duan (AT&T).
3. Session chair or organizer for the following conferences
  - *Data mining*, Spring Research Conference, Ann Arbor, MI, May 20-22, 2002.
  - *Data mining methods*, INFORMS Annual Meeting, San Jose, CA, November, 2002; Atlanta, GA, October, 2003.
  - *Multiscale methods in statistics*, Joint Statistical Meeting, San Francisco, CA, August, 2003.
  - *New researchers' conference*, Toronto, Canada, August, 2004.
  - GT sparsity workshop in 2008.
  - Member of the Program Committee for BioSecure, Taipei, September 24-25, 2009.  
<http://ai.arizona.edu/BI02009/>.
4. Local organizing committee for the following conference (workshop)
  - *New Researchers' Conference*, with Victoria Chen and Paul Kvam, July, 2001.
5. Committee or council member in professional organizations
  - IMS New Researchers Committee, November 2002 - August 2005.
  - INFORMS Data Mining Section council member, November 2003 - November 2004.
  - INFORMS Data Mining Section Vice Chair/Chair-Elect/Chair, Nov. 2007 - Nov. 2009.

#### Reviewer Work

1. Reviewed papers for  $\geq 28$  journals. (Average is about 20 per year. Quits counting since 2006. Full list is available under request.)
2. NSF panel, February 2003, May 2010, February, November 2012; external reviewer, 2004, 2005.
3. Mathematics Reviews, 2002–2004.
4. Louisiana Board of Regents, 2003, 2005.
5. Israeli Science Foundation's FIRST (Focal Initiatives in Research in Science and Technology) program, April 2007.
6. Reviewer for University of Wisconsin-Milwaukee on the Research Growth Initiative, Jan. 2010.
7. Panelist on 2011 INFORMS annual meeting Data Mining best student paper competition.
8. Review for the Icelandic Research Fund, 2014.

## B. Campus Contributions

1. Committee member within the School of ISyE
  - ISyE space committee, 2002 – August 2003.
  - ISyE PhD statistics comprehensive exam committee, School of ISyE. Fall 2001-Spring 2002, Fall 2007-Spring 2008 (chair), Fall 2010-Spring 2011 (chair).
  - ISyE undergraduate committee, July 2006–June 2008.
  - ISyE faculty mentoring process committee, Summer & Fall, 2007.
  - Statistics seminar chair, Fall 2007–Spring 2008, Spring 2013.
2. PhD committees within Georgia Tech.: totally 37 (not including my own advisees)
3. Chair of the award committee on the Sigma Xi Best M.S. Thesis Award, 2006.
4. Judge in the 2009 Graduate Research Symposium, February 26, 2009.
5. Advisory board for Institute for Data and HPC (IDH), data area, November 2010-present.
6. Judge, Georgia Tech Research & Innovation Conference (GTRIC), February 8, 2011.
7. Judge, InVenture Prize at Georgia Tech. January 19, 2012.

## C. Others

### *Memberships in Professional Organizations*

IEEE (Signal Processing), INFORMS (QSR, DM), ASA, IMS.

### *Other Activities*

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

## VI. Grants and Contracts

All the following are funded unless specified.

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**). co-PI.  
 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. co-PI.  
 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. PI  
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**), PI  
Duration: Aug. 15, 2002 - Jul. 1, 2005  
Amount: \$153,440.00 (for Dr. Huo only)  
Title: Collaborative Research: A Focused Research Group (FRG) on Multi-scale 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**), PI  
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**), PI  
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**), 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)
8. Source: National Science Foundation (**NSF**), PI  
Duration: July 15, 2006 - June 30, 2009  
Amount: \$95,000.00  
Title: Statistical Problems in Detectability
9. Source: National Science Foundation (**NSF**), PI  
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)
10. Source: Sandia Natl Labs, PI  
Duration: July 1, 2008 - July 20, 2008  
Amount: \$30,000.00  
Title: Orthogonal Transforms Guided Optimal Measurement Sampling

11. 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)
12. Source: Sandia Natl Labs, PI  
 Duration: Dec. 4, 2008 - Aug. 19, 2009  
 Amount: \$17,000.00  
 Title: Orthogonal transforms guided optimal measurement sampling
13. 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)
14. Source: Sandia Natl Labs, PI  
 Duration: Dec. 14, 2009 - Sep. 30, 2010  
 Amount: \$23,000.00  
 Title: Orthogonal transforms to evaluate and qualify measurement uncertainty
15. Source: NSF/Statistics, PI  
 Duration: Aug. 1, 2011 - Jul. 30, 2014  
 Amount: \$140,000.00  
 Title: Achieving spatial adaptation via inconstant penalization: theory and computational strategies
16. 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

## VII. Honors and Awards

### 1. Professional

*May 2004* Senior Member IEEE.

*June 2006* Elected for Emerging Research Fronts in Mathematics,  
[www.esi-topics.com/erf/2006/june06-Donoho.Huo.html](http://www.esi-topics.com/erf/2006/june06-Donoho.Huo.html).

### 2. Within Georgia Institute of Technology

*2000* Class of 1969 Teaching Fellow.

*2005* Georgia Tech Sigma Xi Young Faculty Award.

### 3. At University of Science and Technology of China (USTC), Hefei, China

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

#### 4. Before College

*July 1989*      *Braunschweig, Germany. First Prize Winner* in 30th International Mathematics Olympiad (IMO30). Ranked *number 2* in the national mathematical competition.

### VIII. Summary of Instruction Opinion Survey <sup>3</sup>

Available under request.

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<sup>3</sup>The range of the scores is from 0 to 5.0.