Alfred Olivier Hero III
John H. Holland Distinguished University Professor of EECS
R. Jamison and Betty Williams Professor of Engineering
Professor of Biomedical Engineering
Professor of Statistics
University of Michigan

Curriculum Vitae, May 31, 2025

Contents

1 General information

Alfred Olivier Hero III

University of Michigan
EECS Bldg, Rm 4234, 1301 Beal Ave. Ann Arbor, MI 48109-2122
734-763-0564(W)734-763-8041 (Fax) hero@umich.edu, www.eecs.umich.edu/~hero

1.1 Employment History

University of Michigan Appointments

2016-Present	John H. Holland Distinguished University Professor of Electrical Engineering and Computer Science
2015-2018	Co-Director, Michigan Institute of Data Science
2009-Present	R. Jamison and Betty Williams Professor of Engineering
2000-Present	Professor, Electrical Engineering and Computer Science, Biomedical Engineering, and Statistics.
1996-2000	Associate Professor, Electrical Engineering and Computer Science and Biomedical Engineering.
1990-1996	Associate Professor, Electrical Engineering and Computer Science.
1984-1990	Assistant Professor, Electrical Engineering and Computer Science.

University of Michigan Interdisciplinary Program Affiliations

2015-present	Michigan Institute for Data Science, Office of Research
2015-present	Applied Physics Graduate Program, Dept of Physics
2005-present	Applied and Disciplinary Mathematics Graduate Program, Dept of Mathematics
1999-present	Bioinformatics graduate program, Dept of Computational Medicine and Bioinformatics

Past Positions

2019	Visiting Professor, University of Paris (Sorbonne), Paris France.
2017-2022	Honorary Consulting Professor, Northwest Polytechnic University, Xian China.
2008-2013	Research faculty (Digiteo Chaire d'Excellence), Digiteo Research Park in Information Science and Technology, Paris France.
2006-2007	Visiting Professor, Massachusetts Institute of Technology, Cambridge MA.
2006-2007	Visiting Professor, Boston University, Boston, MA.
2001	Visiting Professor, Université de Nice-Sophia Antipolis, Sophia-Antipolis France.
1999	Visiting Professor, Ecole Nationale Supérieure des Télécommunications (ENST), Paris France.

1999	Visiting Scientist, Bell Laboratories, Lucent Technologies, Murray Hill NJ.
1999	Visiting Scientist (Chargé de Recherche), CNRS, Ecole Normale Supérieure (ENS), Lyon France.
1993	William Clay Ford Fellow, Scientific Research Laboratory, Ford Motor Co., Dearborn MI.
1991 - 1992	Visiting Scientist, Ecole Nationale Supérieure des Techniques Avancées, Paris France.
1987-1989	Visiting Scientist, M.I.T. Lincoln Laboratory, Lexington MA.

1.2   Service to the Profession in Last 5 Years

1. Program Director, Communications and Information Foundations (CIF) cluster, Computing and Communications Foundations (CCF) Division, Computer and Information Science and Engineering (CISE) Directorate, US National Science Foundation, 2022-

2. US Government Liaison, International Advisory Board, SSAISS, CNRS France, 2022-

3. US Government Liaison, International Advisory Committee, Brazilian Institute for Data Science (BIOS), University of Campinas, Brazil, 2022-

4. Member, International Advisory Board, SSAISS, CNRS France, 2022

5. Member, International Advisory Committee, Brazilian Institute for Data Science (BIOS), University of Campinas, Brazil, 2022

6. Member, External Advisory Committee, Goergen Institute for Data Science (GIDS), University of Rochester, 2021-2022

7. Member, External Advisory Board, AI4Opt an NSF funded Institute for Advances in Optimization, Georgia Institute of Technology, 2021-2022

8. Member, Editorial Board, Book Series on Information Sciences and Learning, NOW Publishers, 2021-2022.

9. Member, Academic Expert Committee for Shenzhen Research Institute of Big Data (SRIBD), Chinese University of Hong Kong (CUHK)-Shenzhen. 2020-2022

10. Co-Chair, National Advisory Committee, NSF Statistical and Applied Mathematical Sciences Institute (SAMSI), Research Triangle Park NC 2017-2021

11. Chair, Committee on Theoretical and Applied Statistics, National Academies of Science, Engineering and Medicine. 2017-2020

12. Editorial Board, Harvard Data Science Review, 2019-2022

13. Section Editor, SIAM Journal on Mathematics of Data Science (SIMODS), 2018-2022

14. Super-moderator and Chair of Advisory Board, arXiv Electrical Engineering and Systems Science (EESS) super-category (I launched arxiv.eess domain). 2017-2022

15. Senior Editor, IEEE Journal on Selected Topics in Signal Processing. 2015-2021

16. Co-chair, Keynote and Tutorials Committee, IEEE Data Science Workshop, 2018

17. Co-General Chair, 2019 IEEE International Symposium on Information Theory, Paris France.

18. Co-Chair, Study on Envisioning Undergraduate Data Science Education. National Academies of Science, Engineering and Medicine, 2016-2018

19. Member, Committee on Advanced and Automated Workflows, National Academies of Science, Engineering and Medicine, 2019-2022

20. Member, Roundtable on Data Science Education, National Academies of Science, Engineering and Medicine, 2016-2019

21. Member, Intelligence Science and Technology Experts Group (ISTEG), National Academies of Science, Engineering and Medicine, 2015-2022

22. Member, Advisory Board, International Centre for Mathematics and Computer Science, Toulouse, France, Jan 2014-2020

23. Member, AI Embedded Cognitive Networks Special Interest Group, IEEE Communications Society. April 2014-2020

24. Member, IEEE Big Data Special Interest Group, IEEE Signal Processing Society, January 2014-2020

1.3 Education

B.S. in Electrical Engineering, Boston University, *summa cum laude,* (1980)

M.S. in Electrical Engineering and Computer Science, Princeton University, (1982)

Ph.D. in Electrical Engineering and Computer Science, Princeton University, December (1984)

2 Honors and Awards

Career Distinction

1. 2021 Life Fellow of Institute of Electrical and Electonic Engineers (IEEE).

2. 2020 Fellow of the Society for Applied and Industrial Mathematics (SIAM).

3. 2020 IEEE Fourier Award, the IEEE Technical Field Award for Signal Processing. Citation: "For contributions to the foundations of statistical signal processing with applications to distributed sensing and performance benchmarking."

4. 2018 H. Scott Fogler Award for Professional Leadership and Service, University of Michigan.

5. 2017 Stephen S. Attwood Excellence in Engineering Award, College of Engineering, University of Michigan. This is the highest honor bestowed on a faculty member by the College of Engineering. It recognizes a faculty member who has extraordinary achievement in teaching, research, service, and other activities that have brought distinction to the College and the University.

6. 2016 Eliahu Jury Award Lecture, University of Miami.

7. 2016- John H. Holland Distinguished University Professorship, University of Michigan. These lifetime appointments are the University of Michigan's most prestigious professorships and recognize senior faculty with exceptional scholarly and/or creative achievements, national and international reputations for academic excellence, and superior records of teaching, mentoring, and service

8. 2016 University of Michigan Distinguished Engineering Professor, sponsored by Novelis Aluminum.

9. 2015 Society Award, IEEE Signal Processing Society, presented at 2016 IEEE Intl. Conference on Acoustics, Speech and Signal Processing in Shanghai China. This is the highest award given by the IEEE Signal Processing Society.

10. 2013 Technical Achievement Award, IEEE Signal Processing Society, presented at 2014 IEEE Intl. Conference on Acoustics, Speech and Signal Processing in Florence Italy.

11. 2011 Rackham Distinguished Faculty Achievement Award, University of Michigan. This award from the UM Graduate School honors senior faculty who have consistently demonstrated outstanding achievements in scholarly research and/or creative endeavors, have a record of sustained excellence in teaching and mentoring of students and junior colleagues, and, through service and other professional activities, have brought distinction to themselves and to the University of Michigan.

12. 2009- R. Jamison and Betty Williams endowed chair in Engineering, University of Michigan.

13. 2003, College of Engineering Research Excellence Award, The University of Michigan.

14. 2002- Distinguished Lecturer, IEEE Signal Processing Society.

15. 2000 IEEE Third Millenium Medal.

16. 1998 Meritorious Service Award, IEEE Signal Processing Society.

17. 1998 Best Paper Award in IEEE Transactions on Signal Processing.

18. 1997 Fellow of IEEE.

19. 1995 Research Excellence Award, Dept. of EECS, The University of Michigan.

Best Paper Awards

1. 2025 Best Student Paper Award, IEEE Intl Conference on Acoustics, Speech and Signal Processing (ICASSP). Awarded to a paper co-authored by former student Mohammadreza Tavasoli Naeini for the paper "Universal Training of Neural Networks to Achieve Bayes Optimal Classification Accuracy," M Tavasoli Naeini, A Bereyhi, M Noshad, B Liang, AO Hero.

2. 2023 Best Paper Award, recognizing impact of "Quantum-inspired computational imaging," Science, Vol. 361, Issue 6403, 17 Aug 2018, co-authored with Yoann Altmann, Stephen McLaughlin, Miles J. Padgett, Vivek K. Goyal, and Daniele Faccio. The paper was selected by an international panel of judges for contributions in the category of Theoretical Computer and Information Sciences and was awarded at the International Conference on Basic Science in Beijing China July 2023.

3. 2023 Best Paper Award, IEEE Statistical Signal Processing Workshop, awarded Neophytos Charalambides (student) and Alfred Hero for the paper entitled "Graph sparsification by approximate matrix multiplication."

4. 2022 Best Poster Award, SIAM Conference on Mathematics of Data Science. Awarded to poster co-authored by doctoral student Neo Charalambides.

5. 2019 Michigan Student Symposium for Interdisciplinary Statistical Sciences, Best Oral Presentation award to PhD student Elizabeth Hou for her presentation on "Anomaly detection in partially observed traffic networks."

6. 2015 IEEE Signal Processing and SP Education Workshop, awarded 3rd place for paper co-authored with PhD student Kevin Moon and colleague Veronique Delouille entitled "Meta learning of bounds on the Bayes classifier error."

7. 2014 IEEE Intl. Conf. on Image Processing, Top 10% Paper Award for paper co-authored with PhD student Kevin Moon, Masters student Jimmy Li, and colleagues Veronique Delouille and Fraser Watson entitled "Image patch analysis and clustering of sunspots: A dimensionality reduction approach."

8. 2014 College of Engineering Student Symposium, Best Poster Award (Tied for 1st place) to two of my PhD students, Joel Leblanc and Tianpei Xie for their presentations "Joint Camera-Blur and Pose Estimation from Aliased Data" and "Multi-sensor classification via Consensus-based Multi-view Maximum Entropy Discrimination," respectively.

9. 2013 IEEE CAMSAP Best Student Paper Competition, awarded 2nd place for paper co-authored with PhD student Zhaoshi Meng and post-docs Dennis Wei and Ami Wiesel entitled "Marginal Likelihoods for Distributed Estimation of Graphical Model Parameters," 2013 IEEE Computational Advances in Multi-Sensor Adaptive Processing workshop, St Martins.

10. 2013 IEEE ICIP Best Paper Award, for a paper co-authored with PhD student Paul Shearer and colleague Anna Gilbert entitled "Correcting Camera Shake by Incremental Sparse Edge Approximation," at the 2013 IEEE Intl. Conf. on Image Processing, Melbourne Australia.

11. 2013 AISTATS Notable Paper Award for paper by PhD student Zhaoshi Meng, and post-docs Dennis Wei and Ami Wiesel entitled "Distributed Learning of Gaussian Graphical Models via Marginal Likelihoods," 16th Intl Conf. on Artificial Intelligence and Statistics 2013, Scottsdale AZ.

12. 2011 IEEE ICASSP Best Student Paper Award, for paper co-authored with PhD student Alexander Jung and colleagues Sebastian Schmutzhard and Franz Hlawatsch entitled "Performance bounds for sparse parametric covariance estimation in Gaussian models," 2011 IEEE Intl Conf. on Acoustics, Speech and Signal Processing, Prague.

13. 2011 SPIE Best Student Paper Award, for paper co-authored with PhD student Greg Newstadt and colleague Edmund Zelnio entitled "Persistent SAR change detection with posterior models," Algorithms for Synthetic Aperture Radar Imagery XVIII, 2011 SPIE Defense, Security and Sensing Conference, Orlando, FL.

14. 2010 IEEE Signal Processing Society Best Paper Award, for paper with PhD student Neal Patwari, student Josh Ash, and colleagues S. Kyperountas, Randy Moses, and Neal Correal entitled "Locating the nodes: Cooperative localization in wireless sensor networks," IEEE Signal Processing Magazine, vol. 22, no. 4, pp 54-69, July 2005.

15. 2008-2009 Best Original Research Paper Award, for paper with PhD student K. Carter, former post-doc Raviv Raich and colleague Will Finn entitled "Analysis of Clinical Flow Cytometric Immunophenotyping Data by Clustering on Statistical Manifolds: Treating Flow Cytometry Data as High-Dimensional Objects," Cytometry: Part B - Clinical Cytometry, vol. 76B, pp. 1-7, Jan 2009.

16. 2005 General Dynamics Medal awarded to paper, co-authored with PHD student Chris Kreucher and colleague Keith Kastella, for best 2005 publication co-authored by GD employee, entitled "Multitarget Tracking using a Particle Filter Representation of the Joint Multitarget Probability Density," IEEE Transactions on Aerospace and Electronic Systems, vol. 39, No. 4, pp. 1396-1414, October 2005.

17. 2003 General Dynamics Medal awarded to paper, co-authored with PhD student Chris Kreucher and colleague Keith Kastella, for best 2003 publication co-authored by GD employee entitled "Multitarget sensor management using alpha divergence measures," in Proc. First IEEE Conference on Information Processing in Sensor Networks, Palo Alto, April 2003

18. 1998 IEEE Signal Processing Society Best Paper Award for paper co-authored with former PhD Mohamed Usman and colleague Jeffrey Fessler entitled "Exploring estimator bias-variance trade-offs using the uniform CR bound," IEEE Trans. on Signal Processing, Vol. SP-44, No. 8, pp. 2026-2041, Aug. 1996.

Plenary and Keynote Presentations

1. "Wearable device networks for predicting health," Keynote at IEEE World AI IoT Congress, June 2023.

2. "Immuno-mimetic Deep Neural Networks," Keynote at 4th Intl. Conference On Data Intelligence and Security (ICDIS), Shenzhen. Aug. 2022.

3. "Meta-learning for deep neural networks," Plenary at 15th International Symposium on Signals, Circuits and Systems (ISSCS 2021).

4. "Learning to benchmark," Keynote at 21st IEEE Statistical Signal Processing Workshop, Rio de Janiero, July 2021 (Originally scheduled for July 2020).

5. "Sparse matrix normal approximations," Plenary at Journées de la Statistique, Nice France May 2021 (Orginally scheduled for May 2020).

6. Commencement speaker, Princeton University Dept. of Electrical and Computer Engineering, May 2019.

7. "Learning to benchmark," Keynote Plenary at IEEE Conf. on Sensor Signal Processing for Defence (SSPD), Brighton UK, May 2019.

8. "The meta-learning problem in data science: learning to predict intrinsic data quality," IEEE International Conference on Signal Processing, Communication and Computing, Qingdao China, Sept 2018.

9. "Meta-learning: predicting performance limits from data," Fifth Bayesian, Fiducial, and Frequentist (BFF5) Conference: Foundations of Data Science, May 2018.

10. "Structured covariance estimation for multimodal data," French Statistical Society Conference May 2018.

11. "Integration and differentiation in multimodal longitudinal datasets," Workshop on Seeing the Trees and the Forest: Understanding Individual and Population Variation in Biology, Medicine, and Society," University of Texas Austin, May 2017.

12. "Data Science for Personalized Health," Health Informatics and Systems Engineering Symposium, Wayne State University, March 2017.

13. "Towards a science of complex data," Eliahu I. and Joyce Jury Award Lecture, University of Miami, Dec 2016.

14. "Non-commutativity in signal prcessing," IEEE Global SIP Conference, Washington DC, Dec 2016.

15. "Continuum limits in data science: a new frontier," Symposium on Frontiers of Big Data, UIUC, Sept 2016.

16. "Foundational principles for large scale graph mining," 2016 MIT Lincoln Laboratory Workshop on Graph Exploitation (GraphEx), May 2016.

17. Commencement speaker, Boston University College of Engineering, May 2016.

18. "Foundational principles for large scale graph mining," Plenary at the Workshop on Data Driven Approached to Networks and Language, Lyon France, May 2016.

19. "Foundational principles for large scale graph mining,", Inaugural Workshop of Shenzhen Institute of Big Data, Shenzhen, China, Mar. 2016.

20. "The need for new theory and new models," Future Directions in Compressive Sensing and Sensing-Processing Integration, workshop at Duke University sponsored by the Office of the Secretary of Defense (OSD), Jan 2016.

21. "Large scale correlation mining," IEEE Workshop on Signal Processing and Education, Sundance UT, July 2015.

22. "Continuum approximations for variational vision," Scale Space and Variational Methods in Computer Vision, Bordeaux May 2015.

23. "Correlation mining in image and video processing," Plenary speaker at IEEE Intl Conference of Image Processing, Paris France Oct 2014.

24. "Correlation mining in large networks with limited samples," Keynote speaker at IEEE International Telecommunications Symposium (ITS), Sao Paulo 2014.

25. "Anomaly-driven information fusion in imaging," Keynote speaker at Conference on Quantitative Non-destructive Evaluation (QNDE), Boise 2014.

26. "Extraction of bio-molecular expression patterns from massive data: from hyperspectral imaging to personalized medicine ," Plenary at UC Riverside NSF IGERT Workshop and Retreat, Lake Arrowhead CA, Dec 2013.

27. "Small sample community detection in massive data sets," IEEE CAMSAP Workshop, St Martin, Dec 2013.

28. "Resource constrained adaptive sensing," Keynote at New Sensing and Statistical Inference Methods Symposium, IEEE GlobalSIP Conference, Dec 2013.

29. "Spatio-temporal graphical models for high dimensional network data," Keynote at Network Theory Symposium, IEEE GlobalSIP Conference, Dec 2013.

30. "Information-driven multimodality fusion," Plenary at AFRL/UES Workshop on Data Fusion for the Detection of Rare and Anomalous Events, Dec 2012."

31. "Graphical modeling for high dimensional data analysis," (Keynote 1)" Solar Information Processing Workshop (SIP) VI, MSU Bozeman, Aug. 14 2012.

32. "Learning with entropic graphs," (Keynote 2) " Solar Information Processing Workshop (SIP) VI, MSU Bozeman, Aug. 15 2012.

33. "Pattern discovery from high throughput biological data,", Plenary at Great Lakes Bioinformatics Conference (GLBIO), May. 2011.

34. "Performance-driven information fusion," Plenary at IEEE Workshop on Sensor Array and Multichannel SP (SAM), Jerusalem, Oct. 2010.

35. "Geometric entropy minimization", Plenary at Workshop on Topological and Geometric Data Analysis, Paris, July. 2009.

36. "Rényi entropies for statistical signal processing", Plenary at IEEE Digital Signal Processing Workshop, San Marco Island, Jan. 2009.

37. "Sparsity Constrained Volumetric Imaging", Plenary at SIAM Great Lakes Workshop on Applied Mathematics, Ann Arbor, April 2008.

38. "Signal Processing for Integrative Bioinformatics," Plenary at Workshop on Information Theory and Applications (ITA), UCSD, San Diego CA, Jan 2008

39. "Signal Processing at the Edge," Plenary at IEEE International Conference on Information, Communications and Signal Processing (ICICS'2007), Singapore, Dec. 2007.

40. "Spanning graphs for dimensionality reduction," Plenary at IEEE Southwest Symposium on Image Analysis and Interpretation (SSIAI), Denver, March 2006.

41. "Sensor networks for localization and tracking," Plenary at New York Workshop on Sensor Networks, Rochester, Oct 2005.

42. "Information Theoretic Approaches to Adaptive Sensing and Sensor Management," Plenary at IEEE Statistical Signal Processing Workshop, June 2005.

43. "Information theoretic criteria for active sensing," Plenary at Sensor, Signal, and Information Processing (SensIP) Workshop, Tempe AZ, April 2005.

44. "Gene Profiling, Clustering, and Networking," Plenary at ICASSP 2005, Philadelphia, Mar. 2005.

45. "Statistical Signal Processing for Gene Microarrays," Plenary at EUSIPCO 2004, Vienna, Sept. 2004.

46. "Genomic Signal Processing with Microarrays," Plenary at 7th IEEE Intl Symp. on Signal Processing and its Applications, Paris, July 2003.

47. "Entropic graph theory and application," Plenary at 3rd Workshop on Energy Minimization Methods and Computer Vision and Pattern Recognition, Lisbon, July 2003.

48. "Signal Processing for Genomics," Plenary at 6th IEEE/URSI Conference on Applications of Signal Processing, Beijing, Aug. 2002.

49. "Statistical Signal Processing for Radio-nucleide Tomography," Plenary at 1st IEEE Workshop on Sensor, Array and Multichannel Signal Processing, Boston, March 2000.

50. "Applications and Generalizations of the EM Algorithm," Plenary at 19th Biennial Symposium on Communications, Kingston (Canada), June. 1998.

Festschrifts and honorary presentations

1. "Howard Shevrin Rememberances," The Science of Psychoanalysis: The Realization of Freud's Promise , Festchrift in Honor of Howard Shevrin, June 2022.

2. "Remarks on Mos Kaveh's impact on signal processing," Workshop to Honor Mos.Kaveh: From UMN to SPS, IEEE, and Beyond," University of Minnesota, Sept 2017.

3. "Integrative modeling for prediction," Workshop to honor MIT Professor Sanjoy Mitter (in conjunction with MIT LIDS Paths Ahead meeting), Cambridge MA, Nov. 2009.

4. "Inference in structured graphical models," Workshop to honor MIT Professor Alan Willsky, Cambridge MA, May 2008.

5. "Parameter Estimation for Multi-dimensional Filtered Poisson Processes," Workshop to honor Washington University Professor Donald Snyder, St. Louis MO, Jan. 2000.

6. "Sur un problème d'estimation pour des processus de Poisson composées et filtrés," (In French - English title, "On a problem of estimation for filtered composed Poisson processes") Colloque Picinbono (Workshop to honor Univ of Paris Professor Bernard Picinbono), University of Paris, France May 1999.

7. "CFAR Target Detection in Imaging Radar," Symposium to honor USC Professor Irving Reed, Univ. Southern California, Los Angeles, Nov. 1998.

Distinguished lectures

1. "Securing our health: AI-enabled wearable health monitoring systems for detecting disease susceptibility," SIAM JUIST Distinguished Speaker Series, Jan 2024.

2. "The emerging protean era of machine learning," CSE Distinguished Lecture, Michigan State University, Jan 2024

3. "Immuno-mimetic Deep Neural Networks," Distinguished MATH-IMS Joint Colloquium in Applied Mathematics, Chinese University of Hong Kong, April 2022.

4. "Ultra-sparse matrix normal models of multiway data," Distinguished Applied Mathematics Seminar for Hong Kong SIAM and Hong Kong Universities, Feb 2021.

5. "Ultra-sparse models of multiway data," Rice University Distinguished Seminar Series, July 2020.

6. "High dimensional covariance selection for multiway data," IEEE Signal Processing Society Distinguished Lecture program, Dept of ECE, Oregon State University, Corvalis OR, Apr 2020.

7. "Learning to benchmark," Distinguished lecture, Seminar on Operations Research and Data Science, Texas A&M, Jan 2020.

8. "Learning intrinsic classifier performance limits directly from data," Distinguished Lecture, Booz, Allen Hamilton Colloquium Series, University of Maryland, Nov 2018.

9. "Geometric random graphs for machine learning," Distinguished Mercer Lecture RPI, March 2018

10. "Towards a science of complex data," School of Computer Science and Engineering, Nanyang Technical University, Singapore, July 2017

11. "Towards a science of complex data," DTC Science and Technology Innovators Series. University of Minnesota, May 2017

12. "Towards a science of complex data," Cornell University, Nov 2016

13. "Towards a Science of Complex Data," ISTeC Distinguished Lecture at Colorado State University, Oct 2016.

14. "Graph continuum limits in data science," Distinguished Lecture in Dept. of Electrical and Systems Engineering, University of Pennsylvania, Jan. 2015.

15. "Graph continuum limits and their application to machine learning," Google Distinguished Lecture in Machine Learning, School of Computer Science, Carnegie Mellon University, Nov. 2015.

16. "Foundational principles for large scale inference and correlation mining," Distinguished Lecture in ECE, University of British Columbia, Mar 2015.

17. "Correlation mining in high dimension with limited samples," Distinguished Lecture in ECE, UCLA, Mar 2015.

18. "Correlation mining for bioinformatics," Distinguished Lecture in ECE, Texas A&M University, 2013.

19. "High throughput data mining for correlations," Distinguished Lecture in ECE, Univ. of Rochester, 2013.

20. "High throughput screening and variable selection for massive data," Distinguished Lecture in Computer Science, Wayne State University, 2013.

21. Interdisciplinary Distinguished Seminar Series NCSU, 2012.

22. "Manifold learning for detection and localization in sensor networks," Distinguished Lecture in Dept of ECE, Univ. of California Los Angeles (UCLA) 2005.

Other Awards and Honors

1. 2019 Best Oral Presentation award at the MSSISS meeting for PhD student Elizabeth Hou's presentation on anomaly detection.

2. 2017 Honorable mention award (second place) at the 2017 DOE DNNR&D Network Science and Nuclear Nonproliferation Challenge for PhD student Elizabeth Hou's entry on a network approach to nuclear diversion detection.

3. 2017 Second Place Award from the Univ. of Michigan Engineering Graduate Symposium in the category of Signal and Image Processing for PhD student Morteza Noshad's poster on "Optimal Estimation of Information Measures and their Applications."

4. 2015 Second Place Award from the Univ. of Michigan Engineering Graduate Symposium in the category of Signal and Image Processing for PhD student Kevin Moon's poster on "Meta learning of bounds on the Bayes classifier error."

5. 2014 First Place Award (Tie) from the Univ. of Michigan Engineering Graduate Symposium in the category of Signal and Image Processing for PhD student Joel LeBlanc's poster on "Joint Camera-Blur and Pose Estimation from Aliased Data."

6. 2014 First Place Award (Tie) from the Univ. of Michigan Engineering Graduate Symposium in the category of Signal and Image Processing for PhD student Tianpei Xie's poster on "Multi-sensor classification via Consensus-based Multi-view Maximum Entropy Discrimination."

7. 2013 Second Place Award from the Univ. of Michigan Engineering Graduate Symposium in the category of Signal and Image Processing for PhD student Hamed Firouzi's poster on "Spatio-temporal Analysis of Gaussian WSS Processes via Complex Correlation and Partial Correlation Screening with Applications to Financial Data."

8. 2005 Univ. of Michigan Horace H. Rackham Distinguished Dissertation Award awarded to PhD student Jose Costa for his thesis "Random graphs for structure discovery in high dimensional data."

Other recognitions

1. AISTATS 2022 Top Reviewer award to 10% of AISTATS reviewers

2. NeurIPS 2021 Outstanding Reviewer award to top 8% of the NIPS reviewers

3 Research

Current research Interests:

Information theory, statistical machine learning, signal and image processing, and anomaly detection. Applications in biology, chemistry, physics, medicine and health, communications and security, space sciences and astronomy, nuclear radiation detection, radar, and sensor networks.

Summary of research contributions

> I. Refereed publications: over 280 peer reviewed journal articles and over 470 peer reviewed conference papers.
> II. Patents: 4 patents issued. 3 patents pending.
> III. Research Grants: Participated as PI or co-PI in over 50 grants and contracts.
> IV. Research students: Graduated 68 doctoral students and supervised 38 post-doctoral students.

3.1 Research publications

3.1.1 Published Refereed Journals

1. U Maitra, AR Hota, R. Gupta, AO Hero, "Optimal protection and vaccination against epidemics with reinfection risk," AIMS Magthematics Special Issue on the Mathematical Control of Nonlinear Systems and its Applications, vol 10, issue 4, 2025.

2. N Charalambides, H Madhavifar, A Hero, "Generalized Fractional Repetition Codes for Binary Coded Computations," IEEE Transactions on Information Theory, vol. 71, issue 3, March 2025.

3. L Zhou, Q Wang, J Wang L Bai, A Hero, "Large and small deviations for statistical sequence matching," IEEE Transactions on Information Theory, vol. 70, no. 11, pp. 7532-7562, Nov 2024.

4. M. Baranwal, A. Magner, P. Elvati, J. Saldinger, A. Violi, A. Hero, "A deep learning architecture for metabolic pathway prediction," Bioinformatics, vol. 40, issue 7, July 29 2024 (Correction of 2020 publication with same title).

5. N. Charalambides, H. Madhavifar, M. Pilanci, A. Hero, "Gradient Coding with Iterative Block Leverage Score Sampling," IEEE Transactions on Information Theory, vol 70, issue 9, pp. 6639-6664, Sept 2024

6. N. Charalambides, H. Madhavifar, M. Pilanci, A. Hero, "Iterative Sketching for Secure Coded Regression," IEEE Journal on Selected Areas in Information Theory, pp. 148-161, April 2024

7. M. Baranwal, J. Salinger, D Kim; P Elvati; A Hero; A Violi, "SPIN: A Data-Driven Model to Reduce Large Chemical Reaction Networks," Fuel, vol. 367, 2024.

8. R Wang, Z Zhu, A Hero, "Multi-Trigger-Key: Towards Multi-Task Privacy Preserving In Deep Learning," IEEE Access, vol. 12, pp. 16939-16950, Feb 2024.

9. N Charalambides, M Pilanci, A Hero, "Securely Aggregated Coded Matrix Inversion," Journal of Selected Areas of Information Theory, Special Issue Dedicated to the Memory of Alex Vardi, Oct 2023.

10. M Aktukmak, H Zhu, MG Chevrette, J Nepper, J Handelsman, and A Hero, "A Graphical Model for Fusing Diverse Microbiome Data," IEEE Transactions on Signal Processing, vol. 71, pp. 3399-3412, Oct 2023.

11. L. Zhou and A. Hero, "Resolution Limits of Non-Adaptive 20 Questions Search for a Moving Target," IEEE Transactions on Information Theory, vol 69, no 9, pp 5463-5484, Sept. 2023.

12. M. Aktukmat, Y. Yilmaz, A. Hero, "Any-shot Learning from Multimodal Observations (ALMO)," IEEE Access, Vol 11, pp. 61513-61524, 2023.

13. A. Hero, S. Kar, J. Moura, J. Neil, V. Poor, M. Turcotte, B. Xi, "Statistics and Data Science for Cybersecurity (with discussion)," Harvard Data Science Review, Issue 5.1, Jan 26 2023.

14. Y. Wei, B. Rajaratnam and A. Hero, "A Unified Framework for Correlation Mining in Ultra-High Dimension," IEEE Transactions on Information Theory, vol 69, no 1, pp 334-382, Jan. 2023.

15. Y. Zhai, PM Doraiswamy, CW Woods, RB Turner, TW Burke, GS Ginsburg, A Hero, "Pre-exposure cognitive performance variability is associated with severity of respiratory infection," Nature Scientific Reports, vol. 12, no22589, Dec 30 2022.

16. M. Aktukmat, Z. Sun, M. Bobra, T. Gombosi, WB Manchester, Y. Chen and A. Hero, "Incorporating Polar Field Data for Improved Solar Flare Prediction," Frontiers in Astronomy and Space Sciences, section on Stellar and Solar Physics, vol. 21, Dec 2022.

17. Y. Wang, Z. Sun, D. Song, A Hero, "Kronecker-structured Covariance Models for Multiway Data," Statistics Surveys, vol 16, pp. 238-270, 2022.

18. R Wang, T Chen, P Yao, S Liu, I Rajapakse, A Hero, "ASK: Adversarial Soft k-nearest neighbor attack and defense," IEEE Access, Sept. 2022.

19. M Baranwal, A Magner, J Saldinger, ES Turali-Emre, P Elvati, S Kozarekar, JS VanEpps, NA Kotov, A Violi, A Hero, "Struct2Graph: a graph attention network for structure based predictions of protein-protein interactions," BMC Bioinformatics, vol 370, no 23, pp 1. Sept 10, 2022.

20. A. Hero, B. Rajaratnam and Y. Wei, "A Unified Framework for Correlation Mining in Ultra-High Dimension," IEEE Transactions on Information Theory, 2022. (Open Access)

21. E Sabeti, S Oh, PX Song, A Hero. "A Pattern Dictionary Method for Anomaly Detection," Entropy - Special Issue on Information Theory and Machine Learning, vol 24, pp. 1095 Aug 2022 (**Feature paper**).

22. L Zhou, L Bai, and A Hero. "Resolution Limits of Non-Adaptive 20 Questions Search for Multiple Targets." IEEE Transactions on Information Theory, vol 68, no 8, pp. 4964-4982, Aug 2022.

23. M Baranwal, RL Clarke, J. Thompson, Z Sun, A. Hero, O. Venturelli, "Recurrent Neural Networks Enable Design of Multifunctional Synthetic Human Gut Microbiome Dynamics," to appear in eLife, 2022.

24. Y. Wang, Z. Sun, D. Song, A. Hero, "TensorGraphicalModels: A Julia Toolbox for Multiway Covariance Models and Ensemble Kalman Filter," Software Impacts, May 14, 2022

25. Z Sun, M Bobra, X Wang, Y Wang, H Sun, T Gombosi, Y Chen, A Hero, "Predicting Solar Flares Using CNN and LSTM on Two Solar Cycles of Active Region Data," The Astrophysical Journal (ApJ), vol 931, no 2, p. 931 (23 pages), June 7, 2022.

26. R Wang, T Chen, S Lindley, C Stansbury, A Rehemtulla, I Rajapakse, A Hero, "RAILS: A robust immune- inspired learning system," IEEE Access, vol 10, pp 22061-22078, Feb 21 2022. 10.1109/TIT.2022.3151719. Available as arxiv:2107.02840.

27. L Zhou, Y Wei, A Hero, "Second order asymptotically optimal outler hypothesis testing," IEEE Trans. on Information Theory, 2022. 10.1109/TIT.2022.3166074. Available as arxiv:2009.03505.

28. A Magner, M Baranwal, A. Hero, "Fundamental limitations of deep graph convolutional networks," IEEE Trans. on Information Theory, vol 68, no 5, pp. 3218-3283, 2022. Available as arxiv:1910.12954.

29. R Wang, T Chen, S Lindley, C Stansbury, A Rehemtulla, I Rajapakse, A Hero, "RAILS: A robust immune- inspired learning system," IEEE Access, to appear 2022. Available as arxiv:2107.02840

30. L. Zhou, Y. Wei and A. Hero, "Second-Order Asymptotically Optimal Outlier Hypothesis Testing," in IEEE Transactions on Information Theory, Feb 2022. doi:10.1109/TIT.2022.3151719

31. E. Grzesiak, B. Bent, MT McClain, et al. Assessment of the Feasibility of Using Noninvasive Wearable Biometric Monitoring Sensors to Detect Influenza and the Common Cold Before Symptom Onset. JAMA Netw Open. 2021;4(9):e2128534. doi:10.1001/jamanetworkopen.2021.28534.

32. Y. Yilmaz, M. Aktukmak and A. O. Hero, "Multimodal Data Fusion in High-Dimensional Heterogeneous Datasets Via Generative Models," in IEEE Transactions on Signal Processing, vol. 69, pp. 5175-5188, 2021, doi:10.1109/TSP.2021.3109375.

33. Jinpu Lin, Qian Qian, Jon Murphy, Abigail Hsu, Alfred Hero, Alexander G.R. Thomas, Karl Krushelnick, "Feature analysis in relativistic laser-plasma experiments utilizing machine learning methods," Physics of Plasmas, vol 28, no. 8, 083102. July 2021.

34. K. Moon, K. Sricharan, A. Hero, "Ensemble Estimation of Generalized Mutual Information with Applications to Genomics," IEEE Transactions on Information Theory, vol. 67, no. 9 pp. 5963-5996, 2021.

35. Y. Wang, C. Hougen, B. Oselio, W. Dempsey, A. Hero, "A geometry-driven longitudinal topic model," Harvard Data Science Review, April 30, 2021.

36. B Robinson, R Malinas, Alfred Hero, "Space-Time Adaptive Detection at Low Sample Support," IEEE Trans, on Signal Processing, vol. 69, no. 4, 2939-2954, 2021.

37. M. Noshad, J. Choi, Y. Sun, A. Hero, I. Dinov, "A Data Value Metric for Quantifying Information Content and Utility," Journal of Big Data, vol 8, no. 1, pp 1-23, Mar. 2021

38. W. Dempsey, B. Oselio, AO Hero, "Hierarchical network models for exchangeable structured interaction processes," Journal of the American Statistical Association, pp. 1-18, April 2021. doi:10.1080/01621459.2021.1896526.

39. E. Hou, E. Lawrence, AO Hero, "Penalized Ensemble Kalman Filters for High Dimensional Nonlinear Systems, PLoS One, vol 16, no. 3, Mar 2021. e0248046

40. L. Zhou and A. Hero, "Resolution Limits of Noisy 20 Questions Estimation," IEEE Trans on Information Theory, vol 67, no 4, pp 2055-2073. April 2021.

41. X. She, Y. Zhai, R. Henao, C.W. Woods, Christopher Chiu, G.S. Ginsburg, P.X.K. Song, AO. Hero, "Adaptive multi-channel event segmentation and feature extraction for monitoring health outcomes," IEEE Transactions on Biomedical Engineering, Nov. 17 2020. DOI:10.1109/TBME.2020.3038652.

42. M. Baranwal, Kunal Garg, Dimitra Panagou, A.O. Hero, "Robust distributed fixed-time economic dispatch under time-varying topology," IEEE Control Letters, Vol 5, no 4. pp. 1183-1188. Aug 2020. DOI 10.1109/LCSYS.2020.3020248.

43. J LeBlanc, B Thelen and A Hero, "Testing that a local optimum of the likelihood is globally optimum using reparameterized embeddings," Journal on Mathematical Imaging and Vision, Vol. 62, pp. 858?871, 2020.

15

44. S. Liu, P.-Y. Chen, B. Kailkhura, G. Zhang, A. Hero, P. Varshney, "A Primer on Zeroth-Order Optimization in Signal Processing and Machine Learning," IEEE Signal Processing Magazine, vol 37, issue 5, Sept. 2020.

45. F. Harirchi, D. Kim, O. Khalil, S. Liu, P. Elvati, M. Baranwal, A. Hero, A. Violi, "On Sparse Identification of Complex Dynamical Systems: A Study on Discovering Influential Reactions in Chemical Reaction Networks," Fuel, Vol. 279, No. 1 November 2020. DOI 10.1016/j.fuel.2020.118204

46. Z. Jiao, H Sun, X Wang, W Manchester, AO Hero, and Y. Chen, "Solar Flare Intensity Prediction with Machine Learning Models," Space Weather, Vol. 18, No. 7, July 2020. DOI 10.1029/2020SW00244

47. S. Sekeh, B. Oselio and A. Hero, "Learning to Bound the Multi-class Bayes Error," IEEE Trans. on Signal Processing, vol. 68, pp. 3793 ? 3807, May 2020. DOI 10.1109/TSP.2020.2994807.

48. Y. Altmann, A. Di Fulvio, M.G. Paff, S.D. Clarke, M.E. Davies, S. McLaughlin, AO Hero, and S.A. Pozzi, "Expectation propagation for weak radionuclide identification at radiation portal monitors," Nature Scientific Reports, 10, Article number: 6811, 2020.

49. M. Baranwal, A. Magner, P. Elvati, J. Saldinger, A. Violi, A. Hero, "A deep learning architecture for metabolic pathway prediction," Bioinformatics, 36(8), pp. 2547?2553, April 2020.

50. A. Jung, AO Hero, A.C Mara, S. Jahromi, A Heimowitz, and Y Eldar, "Semi-supervised learning in network-structured data via total variation minimization." IEEE Transactions on Signal Processing, 67(24), 6256-6269, Dec 2019.

51. S. Sekeh, M. Noshad, AO Hero, "Convergence Rates for Empirical Estimation of Binary Classification Bounds," Entropy, 21(12), 1144, Dec. 2019.

52. K. Greenewald, S. Zhou, AO Hero, "The Tensor Graphical Lasso (TeraLasso)," Journal of the Royal Statistical Society, Series B, vol. 81, no. 5 Nov. 2019.

53. H. Zhu, Y. Altman, A. DiFulvio, S. Mclaughlin, S. Pozzi, AO Hero, "A Hierarchical Bayesian Approach to Neutron Spectrum Unfolding with Organic Scintillators," IEEE Trans. on Nuclear Science, 18 Sept. 2019.

54. Y. Chen, W.B. Manchester, AO Hero, G. Toth, B. DuFumier, T. Zhou, X. Wang, H. Zhu, Z. Sun, T.I. Gombosi, "Identifying Solar Flare Precursors Using Time Series of SDO/HMI Images and SHARP Parameters," Space Weather, vol. 17, no. 10, pp. 1404-1426, Oct. 2019.

55. S. Sekeh and AO Hero, "Geometric estimation of multivariate dependency," Entropy, vol. 21, no. 8, p. 787, Aug 2019. DOI 10.3390/e21040410.

56. L. Zhou and AO Hero, "Exponential Strong Converse for Successive Refinement with Causal Decoder Side Information," Entropy, 21(4), p. 410, April 2019. DOI 10.3390/e21040410 arxiv:1901.01356, Jan 2019

57. E. Hou, Y. Yilmaz, AO Hero, "Anomaly detection for partially observed traffic networks," IEEE Trans. on Signal Processing, vol. 67, no. 6, pp 1461-1476, Mar. 2019.

58. P.-Y. Chen, C.-C, Tu, P.-S. Ting, Y.-Y. Lo, D. Koutra and AO Hero, "Identifying Influential Links for Event Propagation on Twitter: A Network of Networks Approach," IEEE Trans on Signal and Information Processing over Networks, vol. 5, no. 1, pp. 139-151, Mar. 2019.

59. M. Paff, A. Di Fulvio, Y. Altmann, S. D. Clarke, S. A. Pozzi, AO Hero, "Identification of mixed sources with an organic scintillator-based radiation portal monitor," Journal of Nuclear Materials Management, vol. 46, no. 4, April 2019.

60. S Liu, H Chen, S Ronquist, L Seaman, N Ceglia, W Meixner, P-Y Chen, G Higgins, P Baldi, S Smale, A Hero, L A Muir, and I Rajapakse, "Genome Architecture Mediates Transcriptional Control of Human Myogenic Reprogramming," iScience (Cell Press), vol. 6, pp. 232-246, August 31 2018.

61. K.R. Moon, K. Sricharan, K. Greenewald, and AO Hero,"Ensemble Estimation of Information Divergence," Entropy (Special Issue on Information Theory for Machine Learning), vol. 20, no. 8, p. 560, July 2018.

62. Y. Altmann, S. McGlaughlin, AO Hero, and D.Faccio, "The rise of quantum-inspired computational imaging," Science, Vol. 361, Issue 6403, 17 Aug 2018.

63. T. Bannerjee, H. Firouzi, and AO Hero, "Quickest Detection for Changes in Maximal kNN Coherence of Random Matrices," Vol. 66, No. 17, pp. 4490-4503, Sept 2018.

64. P.-Y. Chen and AO Hero, "Phase Transitions and a Model Order Selection Criterion for Spectral Graph Clustering," IEEE Trans on Signal Processing, Vol. 66 No. 13, pp. 3407 - 3420, July 2018

65. M.P. Nemitz, A.A. Stokes, R.J. Marcotte, M.E. Sayed, G. Ferrer, AO Hero, .B. Olson, "Multi-Functional Sensing for Swarm Robots Using Time Sequence Classification: HoverBot, an Example," Frontiers of Robotics and AI, Vol. 17, pp. 5, May 2018.

66. AO Hero (Discussant), "Comment on Minimax Optimal Procedures for Locally Private Estimation by J.C. Duchi, MI Jordan, MJ Wainwright," Journ. of the American Statistical Association, 113(521), pp. 203-204, May 2018.

67. J. LeBlanc, B. BJ Thelen, AO Hero. "Joint Camera-Blur and Pose Estimation from Aliased Data," Journ. Optical Society of America (JOSA), Issue 35, No 4, pp 639-351, Mar. 2018.

68. S. Liu, P.-Y. Chen and AO Hero, "Accelerated Distributed Dual Averaging over Evolving Networks of Growing Connectivity," IEEE Trans on Signal Processing. Vol. 66, No. 7, pp.1845-1859, July 2018.

69. E. Hou, K. Sricharan, AO Hero, "Latent Laplacian Maximum Entropy Discrimination for Detection of High-Utility Anomalies" IEEE Transactions on Information Forensics and Security. Vol. 13, No. 6, pp. 1446-1459, June 2018.

70. Y. C. Eldar, AO Hero, L. Deng, J. Fessler, J. Kovacevic, H. V. Poor, and S. Young, "Challenges and Open Problems in Signal Processing: Panel Discussion Summary from ICASSP 2017," pp. 8-23, IEEE Signal Processing Magazine, Nov 2017.

71. M. P. Nemitz, M. E. Sayed, J. Mamish, G. Ferrer, L. Teng, R. McKenzie, AO Hero, E. Olson, A. A. Stokes, "HoverBots: Precise Locomotion Using Robots That Are Designed for Manufacturability," Frontiers in Robotics and AI, doi: 10.3389/frobt.2017.00055, Oct 2017.

72. H.-W. Chung, L. Zheng, B. Sadler, AO Hero, "Unequal Error Protection Querying Policies for the Noisy 20 Questions Problem," IEEE Trans. on Information Theory, accepted Sept 2017.

73. N. Halay, K. Todros and AO Hero, "Binary Hypothesis Testing via Measure Transformed Quasi Likelihood Ratio Test," IEEE Trans. on Signal Processing, accepted Sept 2017. arXiv 1609.07958

74. A. Wisler, V. Berisha, A. Spanias, AO Hero, "A data-driven basis for direct estimation of functionals of distributions" IEEE Transactions on Signal Processing, accepted Sept 2017.

75. H.-W. Chung, B. Sadler, AO Hero, "Bounds on Variance for Unimodal Distributions," to appear in the IEEE Trans. on Information Theory, 2017. arxiv:1510.08341 (.html) .

76. K. Greenewald, S. Kelley, B. Oselio, AO Hero, "Similarity Function Tracking using Pairwise Comparisons," IEEE Trans. on Signal Processing, vol. 65, no. 21, pp. 5635-5648, 2017. arxiv:1610.03090 Oct. 2016.

77. Y, Altmann, A. Maccarone, A. McCarthy, G. Newstadt, G. S. Buller, S. McLaughlin, AO Hero, "Robust spectral unmixing of sparse multispectral Lidar waveforms using gamma Markov random fields," IEEE Trans. on Computational Imaging, to appear 2017. arxiv:1610.00195.

78. D. Castenon, T. Tsiligkaridis, AO Hero, "Correction to 'On decentralized estimation with active queries'" accepted for publication in IEEE Transactions on Signal Processing, 2017.

79. P.-Y. Chen and AO Hero, "Multilayer Spectral Graph Clustering via Convex Layer Aggregation: Theory and Algorithms," IEEE Tran. in Signal and Information Processing over Networks, vol. 3, no. 3 pp. 553-567, 2017. arXiv:1609.07200.

80. Thomas W Burke, R. Henao, E. Soderblom, E.L. Tsalik. J. Thompson, M. Mcclain, M. Nichols, B. Nicholson, T. Veldman, J. Lucas. AO Hero, C. Woods. G.S. Ginsburg, "Nasopharyngeal Protein Biomarkers of Acute Respiratory Virus Infection," EBioMedicine, vol. 17, pp. 172-181, 2017.

81. T.-P. Xie, N. Nasrabadi, AO Hero, "Learning to classify with possible sensor failures," IEEE Transactions on Signal Processing, Vol. 65, No. 4, pp. 836-849, 2017. arXiv 1507.04540.

82. P. Piantanida, L.R. Vega, AO Hero, "The Three-Terminal Interactive Lossy Source Coding Problem," IEEE Transactions on Information Theory, vol. 63, no. 1, pp. 532 - 562, Jan. 2017. arXiv 1502.01359.

83. H. Firouzi, B. Rajaratnam, AO Hero, "Two-stage Sampling, Prediction and Adaptive Regression via Correlation Screening (SPARCS)," IEEE Transactions on Information Theory, vol. 63, no. 1, pp. 698 - 714, Jan. 2017. arXiv 1502:06189.

84. J. Zheng, M. R. Harris, A. M. Masci; Y. Lin; AO Hero; B. Smith; Y. He, "The Ontology of Biological and Clinical Statistics (OBCS) for Standardized and Reproducible Statistical Analysis," Journal of Biomedical Semantics, vol. 7 no. 1, 15 pages, Sept 2016.

85. Yasin Yilmaz and AO Hero, "Multimodal Event Detection in Twitter Hashtag Networks," Journ. of Signal Processing Systems, pp.1-16, 2016. Available as arxiv 1601.00306, Jan 2016.

86. K. Greenewald, E. Zelnio and AO Hero, "Robust SAR STAP via Kronecker decomposition" IEEE Transactions on Aerospace and Electronic Systems, vol. 52, no. 6, pp 2612-2625, 2016.

87. J. Chen, AO Hero and I. Rajapakse, "Spectral identification of topological domains," Bioinformatics, vol. 32, no. 14, pp. 2151-2158, June 2016. DOI: 10.1093/bioinformatics/btw221.

88. Micah T. McClain, Bradly P. Nicholson, Larry P. Park, Tzu-Yu Liu, AO HeroI, Ephraim Tsalik, Aimee K. Zaas, Timothy Veldman, Lori L. Hudson, Robert Lambkin-Williams, Anthony Gilbert, Geoffrey S. Ginsburg, and Christopher W. Woods, "A genomic signature of influenza infection shows potential for presymptomatic detection, guiding early therapy, and monitoring clinical responses," Open Forum Infectious Disease, Vol. 3, No. 1, 2016.

89. T.-Z. Liu, T. Burke; L.P. Park; C.W. Woods; A.K. Zaas; G.S. Ginsburg; and AO Hero, "An individualized predictor of health and disease using paired reference and target samples," BMC Bioinformatics, vol. 17, no 1, 15 pages, 2016.

90. S.-J. Hwang, S. Damelin, AO Hero, "Shortest path through random points." Annals of Applied Probability, vol. 26, no. 5, pp. 2791-2823, 2016. Available as arXiv:1202.0045.

91. Marcelo Pereyra, Philip Schniter, Emilie Chouzenoux, Jean-Christophe Pesquet, Jean-Yves Tourneret, AO Hero and Steve McLaughlin, "A Survey of Stochastic Simulation and Optimization Methods in Signal Processing," IEEE Journ of Selected Topics in Signal Processing, vol. 10, no. 2 pp. 224-241, 2016. Available as arXiv:1505.00273.

92. K. R. Moon, V. Delouille, J. J. Li, R. De Visscher, F. Watson, and AO Hero, "Image patch analysis of sunspots and active 1 regions II: Clustering via matrix factorization," Journal of Space Weather and Space Climate. vol. 6, 2016.

93. K. R. Moon, V. Delouille, J. J. Li, R. De Visscher, F. Watson, and AO Hero, "Image patch analysis of sunspots and active 1 regions I: Intrinsic dimension and correlation analysis," Journal of Space Weather and Space Climate, vol. 6, 2016.

94. V. Berisha, A. Wisler, AO Hero, and A. Spanias, "Empirically Estimable Classification Bounds Based on a Nonparametric Divergence Measure" IEEE Transactions on Signal Processing, vol. 63, no. 3, pp. 580-591, Feb. 2016.

95. M. Yokokawa, D.-Y. Jung, AO Hero, K. Baser, F. Morady, F. Bogun, "Single- and dual-site pace mapping of idiopathic septal intramural ventricular arrhythmias" Heart Rhythm, vol. 13, no. 1, pp. 72-77, Jan 2016.

96. Yoann Altmann, Steve McLaughlin, AO Hero, "Robust linear spectral unmixing using outlier detection," IEEE Trans on Computational Imaging, vol. 1, no. 2, pp. 74-85, 2015. Available as arxiv:1501.03731.

97. K. Greenewald and AO Hero, "Robust Kronecker Product PCA for Spatio-Temporal Covariance Estimation" IEEE Transactions on Signal Processing, vol. 63, no. 23, pp. 6368-6378, 2015.

98. K.J. Hsiao, J. Calder, AO Hero, "Multi-criteria Anomaly Detection using Pareto Depth Analysis," IEEE Journ on Neural Network Learning Systems, no. 6, vol. 27, pp. 1307-1321, Aug. 2015.

99. P.-Y. Chen and AO Hero, "Deep community detection," IEEE Trans on Signal Processing, vol. 63, no. 21, pp. 5706-5719, Nov. 2015.

100. P.-Y. Chen and AO Hero, "Phase Transitions in Spectral Community Detection," IEEE Trans. on Signal Processing, vol. 63, no. 16, pp. 4339-4347, Aug. 2015.

101. G.E. Newstadt, B. Mu, D. Wei, J.P. How, AO Hero III, "Importance-weighted adaptive search for multi-class targets," IEEE Trans on Signal Processing, vol. 63, no. 23, 6299-6314, Dec. 2015.

102. AO Hero and B. Rajaratnam, "Foundational principles for large scale inference: Illustrations through correlation mining," IEEE Proceedings. In press 2015. Also available as Stanford University Dept of Statistics Technical Report 2015-13 May 2015.

103. Y.-H. Chen, S.U. Park, D. Wei, M. Jackson, G. Newstadt, J. Simmons, M. De Graef and AO Hero, "A Dictionary Approach to the EBSD Indexing Problem," Microscopy and Microanalysis, vol. 21, no. 3, pp. 739-752, June 2015.

104. G. Marjanovic and AO Hero, "l0 Sparse Inverse Covariance Estimation," in IEEE Trans on Signal Processing, vol. 63, no. 12, pp. 3218-3231, May 2015.

105. T. Tsiligkaridis, B. M. Sadler and AO Hero III, "On decentralized estimation with active queries," IEEE Trans on Signal Processing, vol. 63, no. 10, pp. 2610-2622, May 2015.

106. P.Y. Chen and AO Hero, "A universal phase transition in community detectability under a stochastic block model," Physical Review E, vol. 91, no. 3, Mar. 6 2015.

107. G. Newstadt, D. Wei, AO Hero, "Adaptive Search and Tracking of Sparse Dynamic Targets under Resource Constraints," IEEE Trans. Signal Processing, vol. 63, no. 9, pp. 2321-2335, May 2015.

108. K. Todros and AO Hero, "Robust Multiple Signal Classification via Probability Measure Transformation," IEEE Trans. Signal Processing, vol.63, no. 5, pp. 1156-1170, Mar 2015.

109. Y.-H. Chen, D. Wei, G. Newstadt, M. Jackson, J. P. Simmons, M. De Graef and AO Hero, "Parameter estimation in spherical symmetry groups," IEEE Signal Processing Letters, vol. 22, no. 8, pp. 1152-1155, Jan. 2015.

110. A. Dufour, T.-Z. Liu, C. Ducroz, R. Tournemenne, B. Cummings, R. Thibeaux, N. Guillen, AO Hero and J.C. Olivo-Marin, "Signal processing challenges in quantitative 3D cell morphology," IEEE Signal Processing Magazine, vol. 32, no. 1, pp. 30-40, Jan. 2015.

111. V. Berisha and AO Hero, "Empirical non-parametric estimation of the Fisher Information," IEEE Signal Processing Letters, vol. 22, no. 7, pp. 988-992, 2015. .

112. J. Calder, S. Esedoglu and AO Hero, "A PDE-based approach to non-dominated sorting," SIAM Numerical Analysis, vol. 53, no. 1, pp. 82-104, Jan 2015.

113. D. Wei and AO Hero, "Performance Guarantees for Adaptive Estimation of Sparse Signals," IEEE Trans. on Information Theory, vol. 61, no. 4, pp. 2043-2059, Jan 2015.

114. K.J. Hsiao, J. Calder and AO Hero, "Pareto-depth for Multiple-query Image Retrieval," IEEE Trans on Image Processing, vol. 24, no. 2, pp. 583-594, 2015.

115. H. Chen, N. Comment, J. Chen, S. Ronquist, I. T. Ried, AO Hero and I. Rajapakse, "Chromosome conformation of human fibroblasts grown in 3-Dimensional spheroids," Nucleus, 6, no. 1, pp. 55-65, Mar. 2015.

116. P.-Y. Chen and AO Hero, "Assessing and Safeguarding Network Resilience to Nodal Attacks," IEEE Communications Magazine, vol. 52, no. 11, pp. 138-143, Nov 2014.

117. Z. Meng, D. Wei, A. Wiesel, AO Hero, "Distributed Learning of Gaussian Graphical Models via Marginal Likelihoods," IEEE Trans on Signal Processing, vol 62, no. 20, pp. 5425-5438. 2014. The paper's main figure was chosen by the editor to be featured on the cover of this issue.

118. M. Yokokawa, D.Y. Jung, K. K. Joseph, AO Hero, F. Morady, F. Bogun "Computerized Analysis of the 12-Lead Electrocardiogram to Identify Epicardial Ventricular Tachycardia Exit Sites," Heart Rhythm, vol 11, No. 11, pp. 1966-1973, 2014.

119. B. Oselio, J. Kulezsa, and AO Hero, "Multi-layer graph analysis for dynamic social networks," IEEE Journ on Selected Topics in Signal Processing, vol. 8, no. 4, pp. 514-523. Aug. 2014.

120. K.-J. Hsiao, J. Kulezsa and AO Hero, "Social Collaborative Retrieval," IEEE Journ on Selected Topics in Signal Processing, vol. 8, no. 4, pp. 680-689. Aug. 2014.

121. K. Xu and AO Hero, "Dynamic stochastic blockmodels for time-evolving social networks," IEEE Journ on Selected Topics in Signal Processing, vol. 8, no. 4, pp. 552-562. Aug. 2014.

122. T. Tsiligkaridis, B. M. Sadler and AO Hero, "Collaborative 20 questions for localization," IEEE Trans on Information Theory, vol. 60, no. 4, pp. 2233-2252, Apr 2014.

123. G. Newstadt, Ed Zelnio, and AO Hero, "Moving target inference with Bayesian models in SAR imagery," IEEE Trans on Aerospace and Electronics Systems, vol.50, no.3, pp.2004-2018, July 2014.

124. J. Calder, S. Esedoglu and AO Hero, "A Hamilton-Jacobi equation for the continuum limit of non-dominated sorting," SIAM Journal on Mathematical Analysis, vol. 46, no. 1, pp. 603-638, 2014.

125. T. Tsiligkaridis and AO Hero, "Covariance Estimation in High Dimensions via Kronecker Product Expansions," IEEE Trans on Signal Processing, Vol 61, No. 21, pp. 5347 - 5360, Nov 2014.

126. D. Wei and AO Hero, "Multistage Adaptive Estimation of Sparse Signals," IEEE Trans. on Signal Processing, vol. 7, no. 5, pp. 783-796, October 2013.

127. K. Sricharan, D. Wei, and AO Hero, "Ensemble estimators for multivariate entropy estimation," IEEE Trans on Information Theory, Vol 59, No 7, pp. 4374-4388, July 2013.

128. N. Dobigeon, J.Y. Tourneret, C. Richard, J. Bermudez, S. McLaughlin, and AO Hero. "Nonlinear unmixing of hyperspectral images: Models and algorithms," IEEE Signal Processing Magazine, vol. 31, no. 1, pp. 82-94, 2014.

129. A.K. Zaas, T. Burke, M. Chen, M. McClain, B. Nicholson, T. Vekdman, E.L. Tsalik, V. Fowler, E.P. Rivers, R. Otero. S.F. Kinjgsmore. D. Voora. J. Lucas. AO Hero, L.Carin, C.W. Woods, and G.S. Ginsburg, "Evaluation of a Host Based RT-PCR Gene Expression Signature for Identifying Acute Respiratory Viral Infection," Science Translation Medicine, Vol. 5, Issue 203, p. 203-126, Sept 2013

130. T. Tsiligkaridis N and AO Hero, "Covariance Estimation in High Dimensions Via Kronecker Product Expansions," IEEE Trans on Signal Processing. Vol. 61, Issue 21, pp. 5347-5360, 2013.

131. S.-U. Park, N. Dobigeon, AO Hero, "Variational Semi-blind Sparse Deconvolution with Orthogonal Kernel Bases and its Application to MRFM," Signal Processing, pp. 386-400, Aug 2013.

132. L. Galluccio, O. Michel, P. Comon, M. Kliger, AO Hero, "Clustering with a new distance measure based on a dual-rooted tree," Information Sciences, Available online 27 June 2013, ISSN 0020-0255

133. C Bazot, N Dobigeon, J-Y Tourneret, AK Zaas, GS Ginsburg, AO Hero, "Unsupervised Bayesian linear unmixing of gene expression microarrays," BMC Bioinformatics, Vol. 14, No. 99, 2013 (Highly Accessed).

134. KS. Xu, M. Kliger, AO Hero, "Adaptive evolutionary clustering," J. Data Mining and Knowledge Discovery, Vol 28, Issue 2, pp 304-336, March 2014.

135. T. Tsiligkaridis, AO Hero, S. Zhou, "Convergence properties of Kronecker graphical lasso algorithms," to appear in IEEE Trans on Signal Processing, Vol. 61, Issue 7, 2013.

136. W, Gong , H. V. Gupta, D. Yang., K. Sricharan, AO Hero III, "Estimating Epistemic and Aleatory Uncertainties During Hydrologic Modeling: An Information Theoretic Approach," AGU Journal on Water Resources Research, Vol. 49, Issue 4, pp 2253-2273, 2013.

137. B. He, R. Baird, R. Butera, A. Datta, S. George, B. Hecht, AO Hero, J. Liang, G. Lazzi, R.C.. Lee, M. Newman, G.C.Y. Peng, E. Perreault, M. Ramasubramanian, M.D. Wang, J. Wikswo, Fellow, G.-Z. Yang, Y.-T. Zhang, "Grand Challenges in Interfacing Engineering with Life Sciences and Medicine," IEEE Trans on Biomedical Engineering, vol. 65, no. 3, pp. 589-598, Mar. 2013.

138. C.W. Woods; M.T. McClain; M. Chen; A.K. Zaas; B. Nicholson; J. Varkey; T. Veldman; S. F Kingsmore; Y. Huang; R. Lambkin-Williams; A.G. Gilbert; AO Hero; E. Ramsburg; S. Glickman; J. Lucas; L. Carin; G.S. Ginsburg, "A host transcriptional signature for presymptomatic detection of infection in humans exposed to influenza H1N1 or H3N2," PLoS One, Jan 2013.

139. K.S. Xu, M. Kliger, AO Hero, "A regularized graph layout framework for dynamic network visualization," J. Data Mining and Knowledge Discovery, vol. 27, issue 1, pp. 84-116, 2013.

140. K. Todros and AO Hero, "On Measure Transformed Canonical Correlation Analysis," IEEE Trans. on Signal Processing, vol 60, no. 9, pp. 4570-4585, Sept. 2012.

141. AO Hero and B. Rajaratnam, "Hub discovery in partial correlation graphs," IEEE Trans. on Information Theory, vol. 58, no. 9, pp. 6064-6078, Sept. 2012.

142. K. Sricharan, R. Raich and AO Hero, "Estimation of non-linear functionals of densities with confidence," IEEE Trans on Information Theory, vol. 58, no. 7, pp. 4135-4159, July 2012.

143. S.-U. Park, N. Dobigeon, AO Hero, "Semi-blind Sparse Image Reconstruction with Application to MRFM," IEEE Trans on Image Processing, vol. 21, no. 9, pp. 3838-3849, Sept. 2012.

144. P. Shearer, R. Frazin, AO Hero, and A. Gilbert, "The first stray light corrected EUV images of solar coronal holes," Astrophysical Journal Letters, ApJ, 749, L8, Mar. 2012.

145. Y. Chen and AO Hero, "Recursive $\ell_{1,\infty}$ lasso," IEEE Trans. on Signal Processing, vol 68, no 8, pp. 3978-3987, Aug 2012.

146. S. Chretien, AO Hero and H. Perdry, "Space alternating penalized Kullback proximal point algorithms for maximizing likelihood with nondifferentiable penalty ," Annals of the Institute of Statistical Mathematics, vol. 64, no. 4, pp. 791-809, 2012.

147. Y. Chen and AO Hero, "Recursive $\ell_{1,\infty}$ group lasso," to appear in the IEEE Trans on Signal Processing, 2012.

148. R. Mittelman, N. Dobigeon and A.O Hero, "Hyperspectral image unmixing using multiresolution sticky hierarchical Dirichlet process," IEEE Trans. on Signal Processing, vol. 60, no. 4, pp. 1656-1671, April 2012.

149. Y. Huang, K. Sitwala, J. Bronstein, D. Sanders, M. Dandekar, C. Collins, G. Robertson, J. MacDonald, T. Cezard, M. Bilenky, N. Thiessen. Y. Zhao, T. Zeng, M. Hirst, AO Hero, S. Jones, and J. L. Hess, "Identification and characterization of Hoxa9 binding sites in hematopoietic cells," Blood, vol. 119, no. 2, pp. 388-398, 2012. doi:10.1182/blood-2011-03-341081. Published online Nov 9, 2011

150. A. Wiesel and AO Hero, "Distributed covariance estimation in Gaussian graphical models," IEEE Trans. on Signal Processing, Vol. 60, No. 1, pp. 211-220, Jan 2012.

151. M. Yokokawa, T-Y Liu, K. Yoshida, C. Scott, AO Hero, E. Good, F. Morady, F. Bogun, "Automated Analysis of the 12 -Lead Electrocardiogram to Identify the Exit Site of Post-Infarction Ventricular Tachycardia," Heart Rhythm, Vol. 8, No. 3, pp. 330-334, Mar 2012. Published online Oct 2011.

152. L. Gallucio, O. Michel, P. Comon, E. Slezak, AO Hero, "Graph Based k-Means Clustering," EURASIP Journal on Signal Processing, vol. 92, no. 9, pp 1970-1984, Sept 2012. Published online 20 Jan 2012.

153. X. Chen, S. Savarese and AO Hero, "Multimodal Video Indexing Using Directed Information ," IEEE Transactions on Multimedia, Vol. 14, No. 1, Feb. 2012.

154. E. Oubel, M. De Craene, AO Hero, M. Huguet, G. Avegliano, B. H. Bijnens, A. F. Frangi, "Cardiac motion estimation by joint alignment of tagged MRI sequences," Medical Image Analysis, Vol. 16, No. 1, pp. 339-350, Jan 2012. Published online Sept 28, 2011.

155. L. Carin, AO Hero, J. Lucas, D. Dunson, M. Chen, R. Henao, A. Tibau-Puig, A. Zaas, C.W. Woods, and G.S. Ginsburg, "Analysis of high-dimensional longitudinal genomic data for monitoring viral infection," IEEE Signal Processing Magazine, Vol. 29, No. 1, pp. 108-123, Jan 2012.

156. AO Hero and D. Cochran, "Sensor Management: Past, Present, and Future," IEEE Sensors Journal, Vol. 11, No. 12, Dec 2011. (**Invited**)

157. AO Hero and B. Rajaratnam, "Large scale correlation screening," Journal of the American Statistical Society (JASA), Vol. 6, No. 496, pp. 1540-1552, doi:10.1198/jasa.2011.tm11015. December 1, 2011.

158. A. Tibau Puig, A. Wiesel, A. K. Zaas, C. W. Woods, G. S. Ginsburg, G. Fleury, and A.O Hero, "Order-preserving factor analysis - application to longitudinal gene expression," IEEE Trans. on Signal Processing, Vol. 59, No. 9, pp. 4447-4458, Sept. 2011.

159. Y. Chen, A. Wiesel and AO Hero, "Robust shrinkage estimation of high dimensional covariance matrices," IEEE Trans. on Signal Processing, Vol. 59, No. 9, pp. 4097-4107, Sept. 2011.

160. Y. Huang, AK Zaas, A. Rao, N. Dobigeon, PJ Woolf, T. Veldman, NC ʿOien, MT McClain, JB Varkey, B. Nicholson, L. Carin, S. Kingsmore, CW Woods, GS Ginsburg, AO Hero, "Temporal dynamics of host molecular responses differentiate symptomatic and asymptomatic influenza A infection," PLoS Genetics, Vol 7, No. 8, e1002234. Published online Aug. 25, 2011

161. S. Chretien, AO Hero and H. Perdry, "Space alternating penalized Kullback proximal point algorithms for maximizing likelihood with nondifferentiable penalty ," Annals of the Institute of Statistical Mathematics, pp. 1-19, August 11, 2011

162. A.T. Puig, A. Wiesel, G. Fleury, and A.O Hero, "Multidimensional shrinkage-thresholding operator and Group LASSO penalties," vol. 18, no. 6, pp. 363-366, IEEE Signal Processing Letters, June 2011.

163. G. Newstadt, E. Bashan, AO Hero, "Two-stage multi-scale search for sparse targets," IEEE Trans. Signal Processing, vol. 59, no. 5, pp. 2331-2341, May 2011.

164. K. Carter, R. Raich, W. Finn, AO Hero, "Information geometric dimensionality reduction" IEEE Signal Processing Magazine, vol. 28, no. 2, pp. 89-99, Mar. 2011.

165. W.G. Finn, A. M. Harrington, K.M. Carter, R. Raich, A.M. Harrington, S.H. Kroft, and AO Hero, "Immuniphenotypic signatures of benign and dysplastic granulopoiesis by cytomic profiling," Cytometry Part B (Clinical Cytometry), doi: 10.1002/cyto.b.20592, Mar 15, 2011.

166. M. Chen, D. Carlson, A. Zaas, C. Woods, G. Ginsburg, AO Hero III, J. Lucas, L. Carin, "Detection of Viruses via Statistical Gene-Expression Analysis," IEEE Transactions on Biomedical Engineering, vol. 58, issue 3, pp. 468-479, Mar. 2011.

167. B. Chen, M. Chen, J. Paisley, A. Zaas, C. Woods, G. Ginsburg, A. O. Hero III, J. Lucas, D. Dunson, L. Carin, "Bayesian Inference of the Number of Factors in Gene-Expression Analysis: Application to Human Virus Challenge Studies," BMC Bioinformatics, vol. 11, no. 552, 9 Nov 2010.

168. K. S. Xu and AO Hero, "Social Networks of Spammers," The Next Wave, vol. 18, no. 3, pp. 36-44, Aug. 2010.

169. H. Park, AO Hero, P. Bland, M. Kessler. J. Seo, C. Meyer, "Construction of abdominal probabilistic atlases and their value in segmentation of normal organs in abdominal CT scans," IEICE Trans Inf. & Syst., vol., E93-D, no. 8, pp. 2291-2301, Aug. 2010.

170. N. Dobigeon, S. Moussaoui, M. Coulon, J.-Y. Tourneret and AO Hero III, "Algorithmes Bayésiens pour le démélange supervisé, semi-supervisé et non-supervisé d'images hyperspectrales," (English Title: Bayesian algorithms for supervised, semi-supervised and non-supervised hyperspectral image unmixing), Traitement du Signal, vol. 27, no. 1, pp. 79-108, 2010.

171. Y. Chen, A. Wiesel, Y. C. Eldar and AO Hero III, "Shrinkage Algorithms for MMSE Covariance Estimation," IEEE Transactions on Signal Processing, vol. 58, no. 10, pp. 5016-5029, Oct. 2010.

172. K. Yoshida, T.-Z. Liu, C. Scott, AO Hero, M. Yokokawa, S. Gupta, E. Good, F. Morady, F. Bogun, "The Value of Defibrillator Electrograms for Recognition of Clinical Ventricular Tachycardias and for Pace-Mapping Of Post-Infarction Ventricular Tachycardia," Journal of the American College of Cardiology, vol 56, pp 969-979, doi:10.1016/j.jacc.2010.04.043, 2010.

173. Zaas, A.K., Chen,M., Varkey,J., Veldman,T., Hero,A.O., III, Lucas,J., Huang,Y., Turner,R., Gilbert,A., Lambkin-Williams,R., Oien,N.C., Nicholson,B., Kingsmore,S., Carin,L., Woods,C.W., and Ginsburg, G.S., "Response to: 'Improving development of the molecular signature for diagnosis of acute respiratory viral infections', A. Statnikov, L. McVoy, N. Lytkin, C. F. Aliferis" Cell Host and Microbe, 2010.

174. A. Rao, D. States, AO Hero, and D. Engel, "Understanding distal transcriptional regulation from sequence, expression and interactome perspectives," Journal of Bioinformatics and Computational Biology, vol. 8, no. 2, pp. 219-246, Apr. 2010.

175. A. Wiesel, Y. Eldar and AO Hero, 'Covariance estimation in decomposable Gaussian graphical models,' IEEE Trans. on Signal Processing, vol. 58, no. 2, pp. 1482-1492, Feb. 2010.

176. K. Carter, R. Raich, and AO Hero, "On Local Dimension Estimation and Its Applications," IEEE Trans. on Signal Processing, vol. 58, no. 2, Feb. 2010.

177. A.K. Zaas, M. Chen, J. Varkey, T. Veldman, AO Hero, J. Lucas, R. Turner, A. Gilbert, C. Oien, B. Nicholson, S. Kingsmore, L. Carin, C.W. Woods, and G.S. Ginsburg, "Gene Expression Signatures Diagnose Influenza and Other Symptomatic Respiratory Viral Infections in Humans," Cell Host and Microbe, vol. 6, issue 3, pp 207-217, Aug. 2009.

178. A. Wiesel and AO Hero, 'Decomposable Principal Components Analysis,' IEEE Trans. on Signal Processing, vol. 57, no. 11, pp. 4369-4378, Nov 2009.

179. N. Dobigeon, J.-Y. Tourneret, S. Massaoui, M. Coulon and AO Hero, "Joint Bayesian end member extraction and linear unmixing for hyperspectral imagery," IEEE Trans. on Signal Processing, vol. 57, no. 11, pp. 4355-4369, Nov. 2009.

180. N. Dobigeon, AO Hero and J.-Y. Tourneret, "Hierarchical Bayesian sparse image reconstruction with application to MRFM," IEEE Trans. on Image Processing, vol. 18, no. 9, pp. 2059-2070, Sept. 2009.

181. M. Ting, R. Raich and AO Hero, "Sparse image reconstruction for molecular imaging," IEEE Trans. on Image Processing, vol 18, no. 6, pp. 1215-1227, June 2009.

182. K. Carter, R. Raich, W.G. Finn and AO Hero, "FINE: Fisher information non-parametric embedding," IEEE Trans. on Pattern Analysis and Machine Intelligence (PAMI), vol. 31, no. 3, pp. 2093-2098, 2009.

183. E. Chong, C. Kreucher and AO Hero, "Partially Observable Markov Decision Process Approximations for Adaptive Sensing," J. Discrete Event Dynamical Systems, vol. 19, no. 3, pp. 377-422, Sept. 2009.

184. J.A. Sidles, J.L. Garbini, L.E. Harrell, AO Hero, J.P. Jacky, J.R. Malcomb, A.G. Norman, A.M. Williamson, "Practical recipes for the model order reduction, dynamical simulation, and compressive sampling of large-scale open quantum systems," New Journal of Physics, vol. 11, 065002 (96pp), doi: 10.1088/1367-2630/11/6/065002

185. K. Carter, R. Raich, W.G. Finn and AO Hero, "Information preserving component analysis: data projections for flow cytometry analysis," IEEE Journ. of Selected Topics in Signal Processing, vol. 3, no. 1, pp. 148-158, Jan. 2009.

186. E. Bashan, R. Raich., and AO Hero, "Optimal two-stage search for sparse targets using convex criteria," IEEE Trans. on Signal Processing, vol. 56, no. 11, pp. 5389-5402, Nov. 2008.

187. W.G. Finn, K. Carter, R. Raich, L. Stoolman and AO Hero, "Analysis of Clinical Flow Cytometric Immunophenotyping Data by Clustering on Statistical Manifolds: Treating Flow Cytometry Data as High-Dimensional Objects," Cytometry: Part B - Clinical Cytometry, vol. 76B, pp. 1-7, Jan 2009. Published online: Jul 18 2008. (Selected as the featured paper - with our figures on the cover). (**Received Best Original Research Paper Award**).

188. A. Rao, AO Hero III, D.J. States, and J.D. Engel, "Using Directed Information to Build Biologically Relevant Influence Networks," in Journal on Bioinformatics and Computational Biology (http://www.worldscinet.com/jbcb/jbcb.shtml) vol. 6, no.3, pp. 493-519, June 2008.

189. S. Chretien and AO Hero, "On EM algorithms and their proximal generalizations," ESAIM Journ. on Probability and Statistics (http://www.esaim-ps.org), vol. 12, pp. 308-326, 2008.

190. A. Rao, AO Hero III, D.J. States, and J.D. Engel, "Using Directed Information to Build Biologically Relevant Influence Networks," to appear in Journal on Bioinformatics and Computational Biology (http://www.worldscinet.com/jbcb/jbcb.shtml), 2008.

191. D. Zhu and AO Hero, "Bayesian Hierarchical Model for Large-Scale Covariance Matrix Estimation," Journal of Computational Biology (JCB), Vol. 14, No. 10: 1311-1326, Dec 2007.

192. C. M. Kreucher, AO Hero III, K. D. Kastella, and M. R. Morelande, "An Information Based Approach to Sensor Management in Large Dynamic Networks," IEEE Proceedings, vol. 95, no. 5, pp. 978-999, May 2007.

193. R. Rangarajan, AO Hero and R. Raich, "Optimal Sequential Energy Allocation for Inverse Problems," IEEE Journ. Selected Topics in Signal Processing (JSTSP), vol. 1, no. 1, pp. 67-78, June 2007.

194. M.-F. Shih and AO Hero, "Hierarchical inference of unicast network topologies based on end-to-end measurements", IEEE Journal on Signal Processing, vol. 55, No. 5, pp. 1708-1718, May 2007.

195. R. Rangarajan, AO Hero and R. Raich, "Optimal Sequential Design of Experiments for Estimation in Linear Models," IEEE Journ. Special Topics in Signal Processing (JSTSP), vol. 1, no. 1, pp. 67-78, June 2007.

196. D. Blatt and AO Hero, "On tests for global maximum of the log-likelihood function," IEEE Trans. on Info Theory, IEEE Trans. on Info Theory , vol. 53, no. 7, pp. 2510-2526, 2007.

197. P.-J. Chung., J.F. B'ohme, C.F. Mecklenbrauker, AO Hero, "Detection of the Number of Signals Using the Benjamini-Hochberg Procedure," IEEE Trans on Signal Processing, vol 55, no 6. pp 2497-2508, June 2007.

198. H. Neemuchwala, AO Hero, and P. Carson, "Image registration in high dimensional space," International Journal of Imaging Systems and Technology, vol. 16, No. 5, pp. 130-145, Mar 2007 (**Invited**)

199. A. Rao, AO Hero III, D.J. States, and J.D. Engel, "Motif Discovery in Tissue-Specific Regulatory Sequences Using Directed Information," EURASIP Journal on Bioinformatics and Systems Biology, vol. 2007, article ID 13853, 13 pages, 2007.

200. A. Rao, AO Hero III, D.J. States, and J.D. Engel, "Inferring Time-varying Network Topologies from Gene Expression Data," EURASIP Journal on Bioinformatics and Systems Biology, vol. 2007, article ID 51947, 12 pages, 2007.

201. D. Blatt, AO Hero and H. Gauchman, "A convergent incremental gradient algorithm with a constant stepsize," SIAM Journal on Optimization, Vol. 18, No. 1, pp. 29-51, Feb 2007.

202. M. Godavarti and AO Hero, "Training in multiple-antenna Rician fading wireless channels with deterministic spectral component," IEEE Trans. on Wireless Communications, Vol. 6, No. 1, pp. 110-119, Jan. 2007.

203. C. Kreucher, D. Blatt, AO Hero, and K. Kastella, "Adaptive Multi-modality Sensor Scheduling for Detection and Tracking of Smart Targets," Digital Signal Processing, vol. 16, no. 5, pp. 546-567, Sept. 2006.

204. D. Justice and AO Hero, "Estimation of message source and destination from link intercepts", IEEE Trans. on Information Forensics and Security, vol 1, no. 3, pp. 374-385, Sept. 2006.

205. M. Akimoto, H. Cheng, D. Zhu, J. A. Brzezinski, R Khanna, E. Filippova, E. C.T. Oh., Y. Jing, J-L Linares, S. Zareparsi, A. J. Mears, A. O. Hero, T. Glaser, and A.Swaroop, "Targeting of green fluorescent protein to new-born rods by Nrl promoter and temporal expression profiling of flow-sorted photoreceptors," Proceeedings of the National Academy of Sciences (PNAS). Vol 103, No. 10, pp. 3890-3895, March 7 2006.

206. D. Justice and AO Hero, "A binary linear programming reformulation of the graph edit distance for graph recognition," IEEE Trans. on Pattern Analysis and Machine Intelligence (PAMI), vol. 28, no. 8, 1200-1214, Aug 2006.

207. S. Ahn, J.A. Fessler, D. Blatt, and AO Hero, "Convergent incremental optimization transfer algorithms: application to tomography", IEEE Trans. on Medical Imaging, vol. 25, no. 3, pp.283-296, March 2006.

208. D. Blatt and AO Hero, "Energy based sensor network source localization via projection onto convex sets (POCS)," IEEE Trans. on Signal Processing, vol. 54, no. 9, pp. 3614-3619, 2006 (Corresp).

209. M. Ting, AO Hero, D. Rugar, C.-Y. Yip and J. Fessler, "Near optimal signal detection for finite state Markov signals with application to magnetic resonance force microscopy," IEEE Trans. on Signal Processing, vol. 54, no. 6, pp. 2049-2062, June 2006.

210. J. Costa, N. Patwari and AO Hero, "Distributed multidimensional scaling with adaptive weighting for node localization in sensor networks," ACM Journal on Sensor Networking. vol. 2, No. 1, pp 39-64, Feb. 2006.

211. D. Zhu, AO Hero, H. Cheng, R. Khanna and A. Swaroop, "Network constrained clustering for gene microarray data," Bioinformatics, Vol. 21 no. 21 2005, pp. 4014-4020, Sept. 2005.

212. D. Zhu, AO Hero, Z.S. Qin, A. Swaroop, "High throughput screening of co-expressed gene pairs with controlled False Discovery Rate (FDR) and Minimum Acceptable Strength (MAS)," Journal of Computational Biology, Vol. 12, No. 7, 1027-1043, Sept. 2005. (with supplemental tables).

213. M. Godavarti and AO Hero, "Partial update LMS algorithms," IEEE Trans. on Signal Processing, vol. 53, No. 7, pp. 2382-2399, July 2005.

214. N. Patwari, J. Ash, S. Kyperountas, S. Kyperountas, AO Hero, L. Moses, N. S. Correal, "Locating the nodes: Cooperative localization in wireless sensor networks," IEEE Signal Processing Magazine, vol. 22, no. 4, pp 54-69, July 2005. (**Received 2010 IEEE Signal Processing Society Best Paper Award**)

215. M. Godavarti, AO Hero, and T. Marzetta, "Min-Capacity of a Multiple-Antenna Wireless Channel in a Static Rician Fading Environment," IEEE Trans. on Wireless Communications, vol. 4, no. 4, pp. 1715-1723, July 2005.

216. C. Kreucher, K. Kastella, and AO Hero, "Multitarget Tracking using a Particle Filter Representation of the Joint Multitarget Probability Density," IEEE Transactions on Aerospace and Electronic Systems, vol. 39, No. 4, pp. 1396-1414, October 2005. (**won General Dynamics Medal Paper Award for 2005**).

217. H. Neemuchwala, AO Hero, and P.L. Carson, "Image matching using alpha-entropy measures and entropic graphs," Journ. of Signal Processing (Special Issue on Content-based Visual Information Retrieval), vol 85, pp. 277-296, 2005.

218. C. Kreucher, D. Blatt, AO Hero, and K. Kastella, "Adaptive Multi-modality Sensor Scheduling for Detection and Tracking of Smart Targets" Digital Signal Processing,vol. 15, no. 4, July 2005.

219. C. Kreucher, K. Kastella, and AO Hero, "Sensor Management Using An Active Sensing Approach,'"Signal Processing, Vol. 85, No. 3, pp. 607-624, March 2005.

220. C. Vignat, AO Hero and J. Costa, "About closedness by convolution of the Tsallis maximizers," Physica A, Vol. 340, Issue 1-3, pp. 147-152, Sept. 2004.

221. S. Zareparsi, AO Hero, D.J. Zack, R. Williams, A. Swaroop, "Seeing the Unseen: Microarray-based Gene Expression Profiling in Vision," Invest Ophthalmol Vis Sci., Vol. 45, No. 8, pp. 2457-2462, Aug 2004

222. J. Costa and AO Hero, "Geodesic entropic graphs for dimension and entropy estimation in manifold learning," IEEE Trans. on Signal Process., Vol. 52, No. 8, pp. 2210-2221, Aug. 2004.

223. P.-J. Chung, J. Böhme, and AO Hero, "Tracking of multiple moving sources using recursive EM algorithm," EURASIP Journ. of Applied Signal Processing (JASP), Vol. 2004, No. 8, pp. 2-11, 2004.

224. S. Yoshida, A. J. Mears, J. S. Friedman, T. Carter, S. He, E. Oh, Y. Jing, R. Farjo, G. Fleury, C. Barlow, AO Hero, A. Swaroop, "Expression profiling of the developing and mature Nrl-/- mouse retina: Identification of retinal disease candidates and transcriptional regulatory targets of Nrl," Human Molecular Genetics, vol. 13, no. 14, pp. 1497-1503, 2004.

225. M. Godavarti and AO Hero, "Convergence of differential entropies," IEEE Trans. on Info Theory, Vol 50, No. 1, pp. 171-176, Jan. 2004.

226. AO Hero and G. Fleury, "Pareto-optimal methods for gene ranking," Journ. of VLSI Signal Processing, vol. 38, pp. 259-275, 2004.

227. J. Li and AO Hero, "A fast spectral method for active 3D shape reconstruction," Journal of Mathematical Imaging and Vision, Vol. 20, pp. 73-87, Jan. 2004.

228. G. Fleury, AO Hero, S. Zareparsi, and A. Swaroop, "Gene Discovery Using Pareto Depth Sampling Distributions," Journ. of Franklin Institute, vol. 341, No. 1-2, pp. 55-75, Jan-Mar 2004.

229. AO Hero, G. Fleury, A. Mears and A. Swaroop, "Multicriteria Gene Screening for Analysis of Differential Expression with DNA Microarrays," EURASIP Journ. of Applied Signal Processing (JASP), Vol. 2004, No. 1, pp. 43-52, 2004.

230. AO Hero , "Secure Space-Time Communication," IEEE Trans. on Info Theory , Vol. 49, No. 12, pp. 1-16, Dec. 2003.

231. N. Patwari, AO Hero, M. Perkins, N. S. Correal and R. J. O'Dea, "Relative location estimation in sensor networks," IEEE Trans. on Signal Processing, Special Issue on Signal Processing in Networking , vol. 51, No. 9, pp. 2137-2148, Aug. 2003.

232. M.F. Shih and AO Hero , "Unicast-based inference of network link delay distributions using mixed finite mixture models," IEEE Trans. on Signal Processing, Special Issue on Signal Processing in Networking , vol. 51, No. 9, pp. 2219-2228, Aug. 2003.

233. R. Gupta and AO Hero, "High Rate Vector Quantization for Detection," IEEE Trans. on Info Theory, vol. 49, No. 8, pp. 1951-1969, Aug. 2003.

234. AO Hero, B. Ma, O. Michel and J. Gorman, "Applications of entropic spanning graphs," IEEE Signal Proc. Magazine (Special Issue on Mathematics in Imaging), Vol 19, No. 5, pp 85-95, Sept. 2002.

235. D. W. Bliss, K. W. Forsythe, AO Hero, A. F. Yugulalp, "MIMO Environmental Capacity Sensitivity," IEEE Trans. on Signal Processing, Vol. 50, No. 9, pp. 2128-2142, Sept. 2002.

236. Mark Coates, AO Hero, Robert Nowak, Bin Yu, "Internet Tomography," IEEE Signal Processing Magazine (Special Issue on Network Traffic: Scaling and Complexity), Vol. 19, No. 3, pp. 47-65, May 2002.

237. H.S. Kim and AO Hero, "Comparison of GLR and invariance detectors under structured clutter covariance," IEEE Trans. on Image Processing, Vol IP-10, No. 10, pp. 1509-1520, Oct. 2001.

238. O. Michel, AO Hero and P. Flandrin, "Graphes de représentation minimaux, entropies et divergences: applications," (English title: "Minimal spanning graphs, entropies and divergences: applications") Traitement du Signal, Vol 17, No. 4, 2000.

239. AO Hero and T. L. Marzetta, "Cut-off rate and signal design for the quasi-static Rayleigh fading space-time channel," IEEE Trans. on Inform. Theory, Vol IT-47, No 6, pp. 2400-2416, July 2001.

240. B. Ma, S. Lakshmanan, and AO Hero, "Simultaneous detection of lane and pavement boundaries using model-based multisensor fusion," IEEE Transactions on ITS (Intelligent Transportation Systems) special issue on Vision Applications and Technology for Intelligent Vehicles - Part II: Vehicles, Vol ITS-1, No. 3, pp. 135-147, Sept. 2000.

241. R. Gupta and AO Hero, "Power-performance tradeoffs and optimal bit allocation in reduced resolution adaptive filtering," IEEE Trans. on Sig. Proc., Vol. SP-48, No. 10, pp. 2772-2784, Sept. 2000.

242. S. Chretien and AO Hero, "Kullback proximal algorithms for maximum likelihood estimation," IEEE Trans. on Inform. Theory, Vol IT-46, No. 5, pp. 1800-1810, Aug. 2000.

243. W.J. Williams, E. Zalubas and AO Hero, "Word spotting in bitmapped fax documents," Information Retrieval, vol 2, pp. 207-226, May 2000.

244. A. C. Sauve, AO Hero, W. L. Rogers, S. Wilderman and N. H. Clinthorne, "3D reconstruction for a Compton SPECT camera model," IEEE Trans. on Nuclear Science, Vol. 46, No. 6, pp. 2075-2084, Nov. 1999.

245. O. Michel, A. O . Hero and A.-E. Badel, "Tree structured non-linear signal modeling and prediction," IEEE Trans. on Signal Processing, Vol. SP-47, No. 11, pp. 3027-3041, Nov. 1999.

246. AO Hero and O. Michel, "Asymptotic theory of greedy approximations to minimal K-point random graphs," IEEE Trans. on Information Theory, Vol. IT-45, pp. 1921-1939, Sept. 1999.

247. AO Hero, "Sur un problème d'estimation pour des processus de Poisson composés et filtrés," (In French - English title, "On a problem of estimation for filtered composed Poisson processes") Traitement du Signal, Vol. 15, No. 6, pp. 493-502, May 1999.

248. AO Hero, R. Piramuthu, J. A. Fessler and S. R. Titus, "Minimax emission computed tomography using high-resolution anatomical side information and B-spline models," IEEE Trans. on Information Theory (Special issue on Multiscale Statistical Signal Analysis and its Applications), Vol 45, No. 3, pp. 920-938, April 1999.

249. I. Sharfer and AO Hero, "A maximum likelihood digital receiver using the EM algorithm and the discrete wavelet transform," IEEE Transactions on Signal Processing, Vol. 47, No. 3, pp. 813-825, Mar. 1999.

250. AO Hero (Ed.) "Highlights of Statistical Signal and Array Processing," with the IEEE SSAP Technical Committee, IEEE Signal Processing Magazine, Vol 15, No. 5, pp. 21-66, Sept. 1998.

251. A.-E. Badel, O. Michel, and AO Hero, "Comparaison de systèmes et arbres de regression," (In French - English title, "Comparison of systems and regression trees") Traitement du Signal, July 1998.

252. D. Goeckel, AO Hero, and W. E. Stark, "Data-recursive algorithms for blind channel identification in oversampled communication systems." IEEE Transactions on Signal Processing, Vol. 46, No. 8, pp. 2217-2220, Aug. 1998.

253. W.J. Williams, E. Zalubas, R. M. Nickel, and AO Hero, "Scale and translation invariant methods for enhanced time-frequency pattern recognition," Journ. Multidimensional Systems and Signal Processing, vol 9, pp. 465-473, Nov. 1998.

254. AO Hero, "Discussion on The EM algorithm – an old folk-song sung to a fast new tune," X.-L. Meng and D. van Dyk, Journal of the Royal Statistical Society, Ser. B, Vol 59, No. 3, pp. 511-567, 1997.

255. A. Badel, O. Michel and AO Hero, "Arbres de regression: Modèlisation non-parametrique et analyse des séries temporelles," (In French - English title, "Regression trees for non-parametric modeling and time series analysis") Traitement du Signal, Vol. 14, No. 2, pp. 117-133, 1997.

256. AO Hero, M. Usman, A.C. Sauve and J.A. Fessler, "Recursive algorithms for computing the Cramer-Rao bound," IEEE Trans. on Signal Processing, Vol. SP-45, Vol. 3, pp. 803-807, Mar. 1997 (Corresp.).

257. AO Hero, J.A. Fessler, and M. Usman, "Exploring estimator bias-variance tradeoffs using the uniform CR bound," IEEE Trans. on Signal Processing, Vol. SP-44, No. 8, pp. 2026-2041, Aug. 1996. (**Best Paper Award, IEEE Signal Processing Society**).

258. R. Goyal, AO Hero and F. Morady, "Simulation of cardiac memory in a computer model using reactive coupling," Journal of Electrocardiology, Vol. 28, pp. 180-183, 1995.

259. J.A. Fessler and AO Hero, "Penalized maximum likelihood image reconstruction using space alternating generalized EM algorithms," IEEE Trans. on Image Processing, Vol 4, No. 10, pp. 1417-1429, Oct 1995.

260. B. Bayg'un and AO Hero, "Optimal simultaneous detection and estimation under a false alarm constraint," IEEE Trans. on Inform. Theory, Vol. 41, No. 3, pp. 688-703, May 1995.

261. AO Hero and J.A. Fessler, "Convergence in norm for EM-type algorithms," Special Theme Section on the EM Algorithm, Statistica Sinica, Vol 5, No. 1, pp. 41-54, Jan. 1995.

262. J.A. Fessler and AO Hero, "Space-alternating generalized expectation-maximization algorithm," IEEE Trans. on Signal Processing, Vol. SP-42, No. 10, pp. 2664-2677, Oct. 1994.

263. N. Petrick, AO Hero, N.H. Clinthorne, W.L. Rogers, "A fast least squares arrival time estimator for scintillation pulses," IEEE Trans. on Nuclear Science, Vol. NS-41, No. 4, pp. 758-761, Aug. 1994.

264. N. Antoniadis, and AO Hero, "Time delay estimation for filtered Poisson processes using an EM-type algorithm," IEEE Trans. on Signal Processing, Vol. 42, No. 8, pp 2112-2123, Aug. 1994.

265. AO Hero and J.A. Fessler, "A recursive algorithm for computing CR-type bounds on estimator covariance," IEEE Trans. Information Theory, pp. 1205-1205, July 1994 (Corresp.).

266. P.-C. Chiao, W.L. Rogers, N.H. Clinthorne, J.A. Fessler, and A.O. Hero, "Model-based estimation for dynamic cardiac studies using ECT," IEEE Trans. Medical Imaging, Vol. MI-13, No. 2, pp. 217-226, June 1994.

267. P.-C. Chiao, W.L. Rogers, N.H. Clinthorne, J.A. Fessler, and A.O. Hero, "Model-based estimation with boundary side information or boundary regularization," IEEE Trans. Medical Imaging, Vol. MI-13, No. 2, pp. 227-235, June 1994.

268. N. Petrick, AO Hero, N.H. Clinthorne, W.L. Rogers, and J.M. Slosar, "Least squares arrival time estimators for single and piled up scintillation pulses," IEEE Trans. on Nuclear Science, Vol. NS-40, No. 4, pp. 1026-1031, Aug. 1993.

269. N. Petrick, AO Hero, N.H. Clinthorne, and W.L. Rogers, "Least squares arrival time estimators for photons detected using a photomultiplier tube," IEEE Trans. on Nuclear Science, Vol. NS-39, No. 4, pp. 738-743, Aug. 1992.

270. R. Kakarala and AO Hero, "On achievable accuracy in edge localization," IEEE Trans. on Pattern Recognition and Machine Intelligence (PAMI), Vol. 14, No. 7, pp. 777-781, July 1992 (Corresp.).

271. AO Hero, N.H. Clinthorne and W.L. Rogers, "A lower bound on PET timing estimation with pulse pileup," IEEE Trans. Nuclear Science, Vol. NS-38, No. 2, pp. 709-712, April 1991.

272. AO Hero, "Timing estimation for filtered Poisson processes in additive Gaussian noise," IEEE Trans. on Information Theory, Vol. IT-37, pp. 92-106, Jan. 1991.

273. N.A. Petrick, AO Hero, N.H. Clinthorne, and W.L. Rogers, "A method for improved time-of-arrival estimation for weak optical pulses with applications to scintillation detectors," IEEE Trans. on Nuclear Science, Vol. NS-38, No. 2, pp. 174-177, April 1991.

274. J.D. Gorman and AO Hero, "Lower bounds for parametric estimation with constraints," IEEE Trans. on Information Theory, Vol. IT-36, pp. 1285-1301, Nov. 1990.

275. N.H. Clinthorne, W.L. Rogers, AO Hero, "A fundamental limit on timing performance with scintillation detectors," IEEE Trans. on Nuclear Science, Vol. NS-37, No. 2, pp. 658-663, April 1990.

276. N.H. Clinthorne, AO Hero, and N. Petrick, "Lower bounds on scintillation detector timing performance," Nuclear Instrumentation and Methods in Phys. Res., Vol. A299, pp. 548-553, 1990.

277. L. Shao, AO Hero, W.L. Rogers, N.H. Clinthorne, "Information gain from count corrections in SPECT image reconstruction and classification," IEEE Trans. on Nuclear Science, Vol. NS-37, No. 2, pp. 652-657, April 1990.

278. AO Hero, N. Antoniadis, N. Clinthorne, W.L. Rogers, G.D. Hutchins, "Optimal and sub-optimal post-detection timing estimators for PET," IEEE Trans. on Nuclear Science, Vol. NS-37, No. 2, pp. 725-729, April 1990.

279. AO Hero and L. Shao, "Information analysis of single photon computed tomography with count losses," IEEE Trans. on Medical Imaging, Vol. MI-9, No. 3, pp. 117-127, June 1990.

280. L. Shao, AO Hero, W.L. Rogers, and N.H. Clinthorne, "The mutual information criterion for the design and evaluation of SPECT apertures," IEEE Trans. on Medical Imaging, Vol. MI-8, pp. 322-336, Dec. 1989.

281. AO Hero, "Lower bounds on estimator performance for energy invariant parameters of multi-dimensional Poisson processes," IEEE Trans. on Information Theory, Vol. IT-35, pp. 843-858, July 1989.

282. N.H. Clinthorne, W.L. Rogers, L. Shao, AO Hero and K.F. Koral, "Application of the mutual information criterion to assessing gamma cameras," IEEE Trans. on Nuclear Science, Vol. NS-36, pp. 1127-1131, Feb. 1989.

283. AO Hero and S.C. Schwartz, "Poisson models and mean square error for correlator estimators of time delay," IEEE Trans. on Information Theory, Vol. IT-34, pp. 287-303, March 1988.

284. AO Hero and S.C. Schwartz, "A new generalized cross-correlator," IEEE Trans. on Acoustics, Speech and Signal Processing, Vol. ASSP-33, No. 1, pp. 38-45, Feb. 1985.

3.1.2   Books

1. "Automated Research Workflows for Accelerated Discovery: Closing the Knowledge Discovery Loop." (AO Hero was on study committee that drafted the report), The National Academies Press, US National Academies of Sciences, Engineering, and Medicine 2022.

2. "Data Science for Undergraduates: Opportunities and Options." (L. Haas and AO Hero were study co-chairs), The National Academies Press, US National Academies of Sciences, Engineering, and Medicine 2018.

3. S. Cui, AO Hero, T. Luo, J. Moura, Big Data Over Networks. Cambridge University Press, 2015

4. AO Hero, D. Casteñón, D. Cochran and K. Kastella (Eds), Foundations and applications of sensor management. Springer, 2007.

3.1.3   Refereed Conferences

1. R. Malinas, D. Song, B. Robinson, A Hero, "High-Dimensional Sequential Change Detection," IEEE Intl Symposium on Information Theory, Ann Arbor MI. June 2025.

2. M Tavasoli Naeini, A Bereyhi, M Noshad, B Liang, A Hero "Universal Training of Neural Networks to Achieve Bayes Optimal Classification Accuracy," IEEE Intl Conf on Acoustics, Speech and Signal Processing, Hyderabad India, April 2025.

3. R. Malinas, D. Song, A. Hero, "Sequential Community Detection in High-Dimensional Temporal Graphs," Proceedings of Asilomar Conference on Signals, Systems, and Computers," Oct 2024.

4. C Fan, J Liu, A Hero, S. Liu, "Challenging forgets: Unveiling the worst-case forget sets in machine unlearning," European Conference on Computer Vision (ECCV), Milan Italy, Oct 2024.

5. R Wang, Y Li, A Hero, "Deep Adversarial Defense Against Multilevel-Lp Attacks," IEEE Workshop on Machine Learning for Signal Processing (MLSP), London UK, Sept 2024.

6. L Zhou, Q. Wang, J. Wang, L Bei and A Hero, "Large Deviations for Statistical Sequence Matching," International Symposium on Information Theory, Athens Greece, July 2024.

7. Z Sun, D Song and A Hero, "Minimum-Risk Recalibration of Classifiers," Neural Information Processing Symposium (NeurIPS), New Orleans, Dec 2023. **Spotlight**.

8. B. Malinas, D. Song, A Hero, "Community Detection in High-Dimensional Graph Ensembles," Asilomar Conference, Nov 2023.

9. N Charalambides and A Hero, "Graph sparsification by approximate matrix multiplication," IEEE Statistical Signal Processing Workshop, Hanoi Vietnam, July 2023. **Best Paper Award**.

10. M Rudow, N Charalambides, A Hero, R Vinayak, "Compression-Informed Coded Computing," IEEE Intl Symposium on Information Theory (ISIT), Tapei Taiwan, June 2023.

11. J Jia, Y Zhang, D Song, S Liu. A Hero, "Robustness-preserving Lifelong Learning via Dataset Condensation," IEEE Intl Conf on Acoust., Speech and Sig Proc (ICASSP), Rhodes Greece, June 2023.

12. N Charalambides, M Pilanci and A Hero, "Secure Linear MDS Coded Matrix Inversion," Allerton Conference on Communication, Control, and Computing, Oct 2022.

13. B. Jang, J. Nepper, M. Chevrette, Jo Handelsman and A Hero, "High Dimensional Stochastic Linear Contextual Bandit with Missing Covariates," IEEE Workshop on Machine Learning for Signal Processing (MLSP) Xian China, Oct. 2022.

14. B. Robinson, B. Malinas, V Latimer, B Morrison, A Hero, "An improvement on the Hotelling T2 test using the Ledoit-Wolf non-linear shrinkage estimator," 30th European Conference on Signal Processing (EUSIPCO), Belgrade Serbia, Sept 2022.

15. L Zhou, Y Wei, A Hero, "Asymptotics for Outlier Hypothesis Testing ," IEEE Intl Symposium on Information Theory (ISIT), Aalto Finland, June 2022.

16. N Charalambides, H Madhavifar, M Pilanci, A Hero, "Orthonormal Sketches for Secure Coded Regression," IEEE Intl Symposium on Information Theory (ISIT), Aalto Finland, June 2022.

17. C Hougen, L Kaplan, M Ivanovska, F Cerutti, KV Mishra and A Hero, "SOLBP: Second-Order Loopy Belief Propagation for Inferencing in Uncertain Bayesian Networks," 25th Conference on Information Fusion, Linkoping Sweden, July 2022.

18. Y. Wang and A Hero, "Multiway Kalman filter," NeurIPS Workshop on Machine Learning and the Physical Sciences, Dec. 2021.

19. L. Zhou, Y. Wei, A. Hero, "Second-order asymptotically optimal outlying sequence detection with reject option," IEEE Information Theory Workshop, Oct 2021.

20. C. Hougen, L. Kaplan and A. Hero, "Uncertain Bayesian networks: learning from incomplete data," IEEE Machine Learning for Signal Processing, Gold Coast Australia Oct 2021.

21. Ren Wang, Tianqi Chen, Stephen Lindley, Cooper Stansbury, Indika Rajapakse, Alfred Hero, "Immuno-mimetic Deep Neural Networks (Immuno-Net)," ICML Workshop on Computational Biology, International Conference on Machine Learning, July 2021. (Spotlight).

22. Y Wang, A Hero, "SG-PALM: a Fast Physically Interpretable Tensor Graphical Model," International Conference on Machine Learning (ICML), July 2021.

23. L Zhou, A Hero, "Achievable Resolution Limits for the Noisy Adaptive 20 Questions Problem," IEEE International Symposium on Information Theory, July 2021.

24. L Zhou, A Hero, "Resolution Limits of Non-Adaptive 20 Questions Estimation for Multiple Targets," IEEE International Symposium on Information Theory, July 2021.

25. E Hou, E Lawrence, AO Hero, "A sparsity penalized ensemble Kalman filter with application to aerosol tracking," IEEE Symposium on Radiation Measurements and Applications (SORMA), May 2021.

26. E. Sabeti, PXI Song and AO Hero, "Data discovery using lossless compression-based sparse representation," IEEE ICASSP 2021.

27. L. Zhou and AO Hero, "Resolution Limits of 20 Questions Search Strategies for Moving Targets," IEEE International Conf. on Acoustics, Speech and Signal Processing (ICASSP) 2021. Full paper on arxiv 2004.07231

28. N. Charalambides, M. Palanci, and AO Hero, "Approximate Weighted CR Coded Matrix Multiplication," IEEE International Conf. on Acoustics, Speech and Signal Processing (ICASSP). arxiv:2011.09709 Nov 2020.

29. N. Charalambides, H. Madhavifar, A. Hero, "Numerically Stable Binary Gradient Coding," IEEE Intl Symposium on Information Theory (ISIT), Los Angeles, July 2020.

30. L. Zhou and A. Hero, "Resolution Limits of Non-Adaptive Querying for Noisy 20 Questions Estimation," IEEE Intl Symposium on Information Theory, Los Angeles, July 2020.

31. A. Magner, M. Baranwal and A. Hero, "The power of graph convolutional networks to distinguish random graph models," IEEE Intl Symposium on Information Theory, Los Angeles, July 2020.

32. E. Sabeti, P. X.K. Song, A. O. Hero, "Pattern-Based Analysis of Time Series: Estimation," IEEE Intl Symposium on Information Theory, July 2020.

33. W. Yu,. B. Jang, A. Hero, "The Sylvester Graphical Lasso," AISTATS, May 2020. arxiv:2002.00288. Code: https://github.com/ywa136/syglasso.

34. N. Charalambrides, M. Pilanci, A. Hero, "Weighted gradient coding with leverage score sampling," IEEE Intl Conference on Acoustics Speech and Signal Processing, May 2020.

35. B. Jang, W. Yu, AO Hero, "The Sylvester Graphical Lasso (SyGlasso)," Conference on Artificial Intelligence and Statistics (AISTATS), June 2020.

36. N. Charalambrides, M. Pilanci, AO Hero, "Weighted gradient coding with leverage score sampling," IEEE Intl Conference on Acoustics Speech and Signal Processing (ICASSP), May 2020.

37. B. Oselio, A. Sadeghian, S. Savarese, AO Hero, "Time-varying interaction estimation using ensemble methods," IEEE Data Science Workshop, Minnepaolis, May 2019. arXiv1904.0206X

38. SY Sekeh and A.O. Hero, "Feature Selection for mutlti-labeled variables via Dependency Maximization," IEEE Conf. on Acoustics, Speech and Signal Processing (ICASSP), Brighton 2019. arxiv:1902.03544.

39. M. Noshad, Y. Zeng, AO Hero, "Scalable Mutual Information Estimation using Dependence Graphs," IEEE Conf. on Acoustics, Speech and Signal Processing (ICASSP), Brighton 2019. arXiv.1801.09125.

40. H. Tiomoko Ali, S. Liu, Y. Yilmaz, AO Hero, R. Couillet, I. Rajapakse, "Latent heterogeneous multilayer community detection," IEEE Conf. on Acoustics, Speech and Signal Processing (ICASSP), Brighton, 2019. arXiv.1806.07963.

41. B. Jang and AO Hero, "Minimum volume topic modeling," Conference on AI and Statistics (AISTATS), Japan, Apr. 2019.

42. H-.W. Chung, J-.O. Lee, D. Kim, AO Hero, "Trade-offs Between Query Difficulty and Sample Complexity in Crowdsourced Data Acquisition," 2018 56th Allerton Conference on Communication, Control, and Computing, Oct 2018.

43. S. Sekeh, B. Oselio, AO Hero, "Multi-class Bayes error estimation with a global minimal spanning tree," 2018 56th Allerton Conference on Communication, Control, and Computing, Oct 2018.

44. Y. Altmann, M.G. Paff, A. DiFulvio, AO Hero, S. Pozzi, "Bayesian unmixing algorithms for identification of gamma sources using radiation portal monitors," Symposium on Radiation Measurements and Applications (SORMA), Ann Arbor June 2018.

45. M. Noshad and AO Hero, "Rate-optimal meta learning of classification error," IEEE Conf on Acoustics, Speech and Signal Processing (ICASSP), Calgary, April 2018

46. S. Sekeh, B. Oselio, AO Hero, "A Dimension-Independent discriminant between distributions," IEEE Conf on Acoustics, Speech and Signal Processing (ICASSP), Calgary, April 2018

47. E. Hou and AO Hero, "Sequential maximum margin classifiers for partially labeled data," IEEE Conf on Acoustics, Speech and Signal Processing (ICASSP), Calgary, April 2018

48. S. Liu, P.-Y. Chen, I. Rajapakse, AO Hero, "First-order bifurcation detection for dynamic complex networks," IEEE Conf on Acoustics, Speech and Signal Processing (ICASSP), Calgary, April 2018

49. H.-W. Chung, B. Sadler, L. Zheng, A, Hero, "Unequal error protection querying policies for the noisy 20 questions problem," IEEE Conf on Acoustics, Speech and Signal Processing (ICASSP), Calgary, April 2018

50. M. Noshad and AO Hero, "Scalable Hash-Based Estimation of Divergence Measures," Conference on Artificial Intelligence and Statistics (AISTATS) 2018.

51. S. Liu, P.-Y. Chen, J. Chen, and AO Hero, "Zeroth-Order Online Alternating Direction Method of Multipliers: Convergence Analysis and Applications," Conference on Artificial Intelligence and Statistics (AISTATS) 2018.

52. F. Harirchi, O. A Khalil, S. Liu, P. Elvati, A. Violi, AO Hero, "A Data-Driven Sparse-Learning Approach to Model Reduction in Chemical Reaction Networks," NIPS Workshop, Dec 2017.

53. K. Moon, K. Sricharan, AO Hero, "Ensemble Estimation of Distributional Functionals via k-Nearest Neighbors," Allerton Conference, 2017 (**Invited**).

54. M. Noshad, S. Sekeh, K. Moon and AO Hero, "Direct Estimation of Information Divergence Using Nearest Neighbor Ratios," Proceedings of the IEEE Intl Symp. on Information Theory (ISIT), Aachen, June 2017. arXiv 1702.05222.

55. K. Moon, K. Sricharan, A.Hero, "Ensemble estimation of mutual information," Proceedings of the IEEE Intl Symp. on Information Theory (ISIT), Aachen, June 2017. arXiv 1701.08083.

56. X. Wang, C. Jung, A. O Hero, "Part-Level Fully Convolutional Networks for Pedestrian Detection," IEEE Conf on Acoustics, Speech and Signal Processing (ICASSP), New Orleans, Mar 2017.

57. B. Oselio and AO Hero, "Dynamic reconstruction of influence graphs with adaptive directed information," IEEE Conf on Acoustics, Speech and Signal Processing (ICASSP), New Orleans, Mar 2017.

58. S. P. Chepuri, S. Liu, G. Leus, and AO Hero, "Learning sparse graphs under smoothness prior," IEEE Conf on Acoustics, Speech and Signal Processing (ICASSP), New Orleans, Mar 2017.

59. S. Liu, S. P. Chepuri, G. Leus and AO Hero, "Distributed sensor selection for field estimation," IEEE Conf on Acoustics, Speech and Signal Processing (ICASSP), New Orleans, Mar 2017.

60. S. Liu, P.-Y. Chen and AO Hero, "Distributed optimization for evolving networks of growing connectivity," IEEE Conf on Acoustics, Speech and Signal Processing (ICASSP), New Orleans, Mar 2017.

61. P.-Y. Chen and AO Hero, "AMOS: an automated model order selection algorithm for spectral graph clustering," IEEE Conf on Acoustics, Speech and Signal Processing (ICASSP), New Orleans, Mar 2017.

62. K. Moon, S. Sekeh, M. Noushad and AO Hero, "Information theoretic structure learning with confidence," IEEE Conf on Acoustics, Speech and Signal Processing (ICASSP), New Orleans, Mar 2017.

63. M. Wilmanski, C. Kreucher, AO Hero, "Complex input convolutional neural networks for wide angle SAR ATR," IEEE GlobalSIP Conference, Dec 2016.

64. W. Lu, V. Tarokh and AO Hero, "Analysis of a privacy-preserving PCA algorithm via random matrix theory," IEEE GlobalSIP Conference, Dec 2016.

65. T. Banerjee and AO Hero, "Quickest hub discovery in correlation graphs," Asilomar Conference on Signals, Systems and Computers, Nov 2016 (Invited)

66. K. Greenewald, S. Kelley, A.Hero, "Dynamic metric learning from pairwise comparisons," Allerton, Oct 2016 (Invited)

67. L. Wei, AO Hero and V. Tarokh, "Scaling laws and phase transitions for target detection in MIMO radar," IEEE Information Theory Workshop, Cambridge UK, 2016.

68. P.-Y. Chen, B. Zhang, M. Al Hasan, "Incremental Method for Spectral Clustering of Increasing Orders," 12th International Workshop on Mining and Learning with Graphs, San Francisco Aug. 2016.

69. Y. Altmann, A. Maccarone, A. McCarthy, G. Newstadt, G. S. Buller, S. McLaughlin, AO Hero, "Robust spectral unmixing of multispectral LIDAR waveforms," Los Angeles, June 2016.

70. N. Halay, K. Todros and AO Hero, "Measure transformed quasi-likelihood ratio test for Bayesian binary hypothesis testing," IEEE Workshop on Statistical Signal Processing (SSP), Pamplona Spain, June 2016.

71. B. Oselio and AO Hero, "Dynamic Directed Influence Networks: A Study of Campaigns on Twitter," Proceedings of Conference on Social Behavioral Prediction 2016. Washington DC, June 2016.

72. K. Greenwald and AO Hero, "Kronecker PCA-based robust SAR STAP," to appear in Algorithms for Synthetic Aperture Radar Imagery XXIII, Baltimore MD, April 2016. Full version on arxiv 1502:07481, Jan 2015.

73. K. Moon, K. Sricharan, and AO Hero, "Improving Convergence of Divergence Functional Ensemble Estimators," IEEE IEEE Intl Symposium on Information Theory (ISIT), July 2016.

74. H.-W. Chung, L. Zheng, B. Sadler, AO Hero, "Unequal Error Protection Coding Approaches to the Noisy 20 Questions Problem," IEEE Intl Symposium on Information Theory (ISIT), July 2016.

75. S.V. Gliske, W.C. Stacey, K.R. Moon and AO Hero, "The intrinsic value of HFO features as a biomarker for epileptic activity," IEEE Intl Conf. on Acoustics, Speech, and Signal Processing (ICASSP), Shanghai, Mar. 2016.

76. P.-Y. Chen and AO Hero, "Multi-centrality graph PCA and its application to cyberintrusion detection," IEEE Intl Conf. on Acoustics, Speech, and Signal Processing (ICASSP), Shanghai, Mar. 2016.

77. K. Todros and AO Hero, "Measure transformed quasi-likelihood ratio test," IEEE Intl Conf. on Acoustics, Speech, and Signal Processing (ICASSP), Shanghai, Mar. 2016.

78. Y.-H. Chen, R. Mitteleman, B. Kim, C. Meyer and AO Hero, "Particle filtering for slice-to-volume motion correction in EPI-based fMRI," IEEE Intl Conf. on Acoustics, Speech, and Signal Processing (ICASSP), Shanghai, Mar. 2016.

79. Hye Won Chung, Brian M. Sadler, and Alfred O Hero, "Bounds on variance for symmetric unimodal distributions," to appear at the Allerton Conference, Oct. 2015.

80. Yasin Yilmaz and Alfred O Hero, "Multimodal factor analysis," Proc. of IEEE Workshop on Machine Learning and Signal Processing, Boston, 2015.

81. K. Moon, V. Delouille and AO Hero, "Meta learning of bounds on the Bayes classifier error," IEEE Workshop on Signal Processing and Signal Processing Education, 2015, Snowbird UT. (**Best Paper Award, 3rd Place**).

82. Y.H. Chen, D. Wei, G. Newstadt, M. DeGraef, J. Simmons, AO Hero, "Statistical Estimation and Clustering of Group-invariant Orientation Parameters," Fusion 2015, Washington D.C.

83. B. Mu, G. Newstadt, D. Wei, AO Hero, J.P. How, "Adaptive Search for Multi-class Targets with Heterogeneous Importance," Fusion 2015, Washington D.C.

84. Y.H. Chen, D. Wei, G. Newstadt, J. Simmons, AO Hero, "Coercive Region-level Registration for Multi-modal Images," to appear at IEEE Intl Conf on Image Processing, Quebec 2015.

85. Taposh Banerjee, Hamed Firouzi and Alfred O Hero, "Non-parametric Quickest Change Detection for Large Scale Random Matrices," IEEE Intl Symposium on Information Theory, Hong Kong, 2015.

86. Leonardo Rey Vega, Pablo Piantanida, AO Hero, "On the rate distortion regions for interactive source coding," IEEE Intl Symposium on Information Theory, Hong Kong, 2015.

87. Pin-Yu Chen and AO Hero, "Phase transitions in spectral community detection of large noisy networks," IEEE Intl Conf on Acoustics, Speech, and Signal Processing (ICASSP), Brisbane, April 2015.

88. Brandon Oselio, Alex Kulesza, AO Hero, "Information extraction from large multi-layer social networks," IEEE Intl Conf on Acoustics, Speech, and Signal Processing (ICASSP), Brisbane, April 2015.

89. Yoann Altmann, Steve McLaughlin, AO Hero, "Robust linear spectral unmixing using outlier detection," IEEE Intl Conf on Acoustics, Speech, and Signal Processing (ICASSP), Brisbane, April 2015.

90. Koby Todros and AO Hero, "Measure transformed quasi maximum likelihood estimation with application to source localization," IEEE Intl Conf on Acoustics, Speech, and Signal Processing (ICASSP), Brisbane, April 2015.

91. Goran Marjanovic, Magnus Ulfarsson, AO Hero, "MIST: L0 sparse linear regression with momentum," IEEE Intl Conf on Acoustics, Speech, and Signal Processing (ICASSP), Brisbane, April 2015.

92. Tianpei Xie, Nasser Nasrabadi, AO Hero, "Multi-sensor classification via consensus-based multi-view maximum entropy discrimination," IEEE Intl Conf on Acoustics, Speech, and Signal Processing (ICASSP), Brisbane, April 2015.

93. Brandon Oselio, Alex Kulesza, and Alfred O Hero, "Socio-spatial Pareto frontiers of Twitter networks," Social Behavioral Prediction 2015.

94. Jie Chen, Cedric Richard and AO Hero and Ali H. Sayed, "Diffusion LMS For Multitask Problems With Overlapping Hypothesis Subspaces," IEEE Conf on Machine Learning and Signal Processing, Reims France 2014.

95. K. Moon and AO Hero, "Multivariate f-divergence estimation with confidence," NIPS, Montreal, Dec 2014.

96. K. Moon, J. Li, V. Delouille, F. Watson and AO Hero, "Image patch analysis of sunspots: a dimensionality reduction approach," IEEE Intl Conference on Imge Processing (ICIP), Paris, Oct 2014. (**Won Top 10% award from the conference program committee**).

97. K. Greenewald, AO Hero, "Regularized Block Toeplitz Covariance Matrix Estimation via Kronecker Product Expansions," Proc. of IEEE Statistical Signal Processing (SSP) Workshop, Gold Coast, June 2014.

98. G. Newstadt, AO Hero, and J. Simmons, "Robust spectral unmixing for anomaly detection," Proc. of IEEE Statistical Signal Processing (SSP) Workshop, Gold Coast, June 2014.

99. Z. Meng, B. Erikson, AO Hero, "Learning Latent Variable Gaussian Graphical Models," Proc. of Intl Conf. on Machine Learning (ICML), Beijing, July 2014.

100. K. Moon and AO Hero, "Ensemble estimation of multivariate f-divergence," Proc. of IEEE Intl. Symposium on Information Theory (ISIT), Hawaii, June 2014.

101. L.R. Vega, P. Piantanida and AO Hero, "On the Three-Terminal Interactive Lossy Source Coding Problem," Proc. of IEEE Intl. Symposium on Information Theory (ISIT), Hawaii, June 2014.

102. P. Piantanida, L.R. Vega, and AO Hero, "A Proof of the Generalized Markov Lemma with Countable Infinite Sources," Proc. of IEEE Intl. Symposium on Information Theory (ISIT), Hawaii, June 2014.

103. G. Newstadt and AO Hero, "Cramer-Rao lower bound analysis of multichannel SAR with spatially vsrying, correlatred noise." in Proc. of SPIE 9093, Algorithms for Synthetic Aperture Radar Imagery XXI," June 2014. DOI 10.1117/12.2058257.

104. P.-Y. Chen and AO Hero, "Local Fiedler Vector Centrality for Detection of Deep and Overlapping Communities in Networks," Proc. of IEEE Conf. on Acoustics, Speech and Signal Processing (ICASSP) 2014.

105. G. Marjanovic and AO Hero, "On lq Estimation of Sparse Inverse Covariance," Proc. of IEEE Conf. on Acoustics, Speech and Signal Processing (ICASSP) 2014.

106. J. Chen, AO Hero, "Nonlinear unmixing of hyperspectral images using a semiparametric model and spatial regularization," Proc. of IEEE Conf. on Acoustics, Speech and Signal Processing (ICASSP) 2014.

107. T. Xie, N. Nasrabadi and AO Hero, "Learning to classify with possible sensor failures," Proc. of IEEE Conf. on Acoustics, Speech and Signal Processing (ICASSP) 2014.

108. K. Todros and AO Hero, "Robust Measure Transformed MUSIC for DOA Estimation," Proc. of IEEE Conf. on Acoustics, Speech and Signal Processing (ICASSP) 2014.

109. B. Oselio, J. Kulesza and AO Hero, "Multi-layer graph analytics for dynamic social networks", Proc. of Workshop on Social Computing, Behavioral-Cultural Modeling and Prediction, April 2014. Available as arXiv:1309.5124

110. M. Hsiao, J. Kulesza, and AO Hero, "Social collaborative networks," Proceedings of ACM Conference on Web Search and Data Mining (WSDM), Mar 2013 (18% acceptance rate).

111. J. Calder, S. Esedoglu and AO Hero, "A continuum limit for non-dominated sorting," Conference on Information Theory and Applications (ITA), Feb. 2014.

112. Z. Meng, D. Wei, A, Wiesel AO Hero, "Marginal Likelihoods for Distributed Estimation of Graphical Model Parameters," Proceedings of IEEE CAMSAP 2013. Paper awarded 2nd place in **Best Student Paper Competition**.

113. H. Firouzi, B. Rajaratnam, AO Hero, "Two-stage variable selection for molecular prediction of disease," Proceedings of IEEE CAMSAP 2013. (Nominated for Best Student Paper Competition).

114. K. Greenwald, T. Tsiligkaridis and AO Hero, "Kronecker Sum Decompositions of Space-Time Data," Proceedings of IEEE CAMPSAP 2013.

115. G. Newstadt, D. Wei, AO Hero, "Adaptive Search for Sparse, Dynamic Targets," Proceedings of IEEE CAMSAP 2013.

116. H. Firouzi, D. Wei, and AO Hero, "Spatio-Temporal Analysis of Gaussian WSS Processes via Complex Correlation and Partial Correlation Screening," Proceedings of GlobalSIP 2013.

117. T. Tsiligkaridis, B. Sadler, AO Hero, "Blind Collaborative 20 Questions for Target Localization," Proceedings of GlobalSIP 2013.

118. P.-Y. Chen and AO Hero, "Node Removal Vulnerability of the Largest Component of a Network," Proceedings of IEEE GlobalSIP 2013.

119. D. Cochran and AO Hero, "Information-driven sensor planning: navigating a statistical manifold," Proceedings of GlobalSIP 2013.

120. T.-Y. Liu and AO Hero, "A Sparse Multi-class Classifier for Biomarker Screening," Proceedings of IEEE GlobalSIP 2013.

121. D. Wei and AO Hero, "A Performance Guarantee for Adaptive Estimation of Sparse Signals," Proceedings of IEEE GlobalSIP 2013.

122. P. Shearer, A. Gilbert and AO Hero, "Correcting camera shake by incremental sparse approximation," IEEE ICIP 2013. Melbourne. (**Best Paper Award**).

123. S.-U. Park, D. Wei, M. DeGraef, M. Shah, J. Simmons and AO Hero, "EBSD image segmentation using a physics-based forward model," IEEE ICIP 2013. Melbourne.

124. Theodoros Tsiligkaridis and AO Hero III, "Low Separation Rank Covariance Estimation using Kronecker Product Expansions," IEEE ISIT 2013. Istanbul.

125. Theodoros Tsiligkaridis, B.M. Sadler and AO Hero, "A collaborative 20 questions model for target search with human-machine interaction," IEEE ICASSP 2013. Vancouver.

126. Dennis Wei and AO Hero, III, "Adaptive spectrum sensing and estimation," IEEE ICASSP 2013. Vancouver.

127. Z. Meng, D. Wei, A. Wiesel, AO Hero, "Distributed Learning of Gaussian Graphical Models via Marginal Likelihoods," AISTATS 2013. Scottsdale AZ. (**Notable Paper Award**).

128. H. Firouzi, AO Hero, B. Rajaratnam, "Predictive Correlation Screening: Application to Two-stage Predictor Design in High Dimension," AISTATS 2013. Scottsdale AZ.

129. K.S. Xu and AO Hero, "Dynamic stochastic blockmodels: Statistical models for time-evolving networks," Conference on Social Computing, Behavioral-Cultural Modeling, and Prediction, 2013.

130. K.-J. Hsiao, K. S. Xu, J. Calder and AO Hero, "Multi-criteria Anomaly Detection using Pareto Depth Analysis", Proc. of Neural Information Processing Systems (NIPS), Dec 2012. (**Selected for spotlight presentation**)

131. K. Sricharan and AO Hero. "Ensemble weighted kernel estimators for multivariate entropy estimation", Proc. of Neural Information Processing Systems (NIPS), Dec 2012.

132. C. Bazot, N. Dobigeon, J. Y. Tourneret and AO Hero III, "Bayesian Linear Unmixing of Time-Evolving Gene Expression Data Using a Hidden Markov Model" European Signal Processing Conference (EUSIPCO), Aug 2012.

133. T. Tsiligkardis, AO Hero, S. Zhou, "Convergence properties of Kronecker graphical lasso algorithms," IEEE Statistical Signal Processing Workshop, Ann Arbor MI, Aug. 2012.

134. D. Wei and AO Hero, "Multistage adaptive estimation of sparse signals," IEEE Statistical Signal Processing Workshop, Ann Arbor MI, Aug. 2012.

135. F. Bassi and AO Hero, "Large scale correlation detection," IEEE International Symposium on Information Theory, pp. 2591-2595, June 2012.

136. K. Todros and AO Hero, "Measure transformed canonical correlation analysis with application to financial data ," IEEE Sensors Arrays and Multichannel (SAM) Workshop 2012. (**Invited**)

137. G. E. Newstadt, E. G. Zelnio, and AO Hero III, "A generalizable hierarchical Bayesian model for persistent SAR change detection", E. G. Zelnio and F. D. Garber, Eds., vol. 8394, no. 1. SPIE, 2012.

138. X. Chen, Z. Syed and AO Hero, "EEG spatial decoding with shrinkage regularized directed information assessment," Conf on Acoust., Speech, and Signal Proc. (ICASSP) 2012.

139. T. Tsiligkardis and AO Hero, "Sparse covariance estimation under kronecker product structure," Conf on Acoust., Speech, and Signal Proc. (ICASSP) 2012.

140. G. Newstadt and AO Hero, "Sensor management and provisioning for multiple target radar tracking systems," Conf on Acoust., Speech, and Signal Proc. (ICASSP) 2012.

141. Z. Meng, A. Wiesel, AO Hero, "Distributed principal component analysis on networks via directed graphical models," Conf on Acoust., Speech, and Signal Proc. (ICASSP) 2012.

142. K. Sricharan and AO Hero, "Efficient anomaly detection using bipartite k-NN graphs," Neural Information Processing Systems (NIPS), Grenada Spain, Dec. 2011.

143. L. Mei, J. Liu, AO Hero, S. Savarese, "Robust object pose estimation via statistical manifold modeling," 13th Intl Conf on Computer Vision (ICCV), Barcelona, Nov. 2011.

144. K. Sohn, D-Y Jung, H Lee, AO Hero, "Efficient learning of sparse, distributed, convolutional feature representations for object recognition," 13th Intl Conf on Computer Vision (ICCV), Barcelona, Nov. 2011

145. X. Chen, Yilun Chen and AO Hero, "Shrinkage Fisher Information Embedding of High Dimensional Feature Distributions", Asilomar Conference, Pacific Grove, Nov 2011.

146. G. Newstadt, E Bashan and AO Hero, "Adaptive Search for Sparse Moving Targets under Resource Constraints," Asilomar Conference, Pacific Grove, Nov 2011. (**Invited**)

147. A. Puig and AO Hero, "Misaligned principal components analysis (misPCA)," Asilomar Conference, Pacific Grove, Nov 2011.

148. C. Bazot, N. Dobigeon, JY Tourneret, AO Hero, "Mod\'{e}le Bernoulli-Gaussien pour lanalyse g\'{e}n\'{e}tique," GRETSI, Bordeaux 2011.

149. K. Xu, M. Kliger, AO Hero, "Visualizing the Evolution of Nodes and Groups in Dynamic Networks," Workshop on Knowledge Discovery and Data Mining (KDD), San Diego, Aug. 2011.

150. K. Sricharan, R. Raich and AO Hero, "k-nearest neighbor estimation of entropies with confidence," IEEE Symposium on Information Theory (ISIT), St Petersburg RU, July 2011.

151. K. Sricharan, R. Raich and AO Hero, "Performance-driven information fusion," Workshop on Defense Applications of Signal Processing (DASP), Brisbane AU, July 2011.

152. K. Sricharan, AO Hero, and B. Rajaratnam "A Local Dependence Measure and Its Application to Screening for High Correlations in Large Data Sets," International Conference on Information Fusion, Chicago, July 2011.

153. K. Sricharan, R. Raich and AO Hero, "Weighted k-NN graphs for Renyi entropy estimation in high dimensions," IEEE Workshop on Statistical Signal Processing (SSP), Nice, June 2011.

154. K. Xu, M. Kliger and AO Hero, "A shrinkage approach to dynamic networks," IEEE Workshop on Statistical Signal Processing (SSP), Nice, June 2011.

155. G. Newstadt, E. Zelnio, and AO Hero, "Persistent SAR change detection with posterior models," Algorithms for Synthetic Aperture Radar Imagery XVIII, SPIE Defense, Security and Sensing 2011, Orlando, FL, April 2011. (**Best Student Paper Award**).

156. B. Bahmardi, R. Raich and A.O Hero, "Entropy estimation using the principle of maximum entropy," Conf on Acoust., Speech, and Signal Proc. (ICASSP), Prague, May 2011.

157. C. Bazot, N. Dobigeon, J.-Y. Tourneret and A.O Hero, "A Bernoulli-Gaussian model for gene factor analysis," Conf on Acoust., Speech, and Signal Proc. (ICASSP), Prague, May 2011.

158. A. Rao and A.O Hero, "Biological Pathway Inference using Manifold Embedding," Conf on Acoust., Speech, and Signal Proc. (ICASSP), Prague, May 2011.

159. A. Jung, S. Schmutzhard, F. Hlawatsch and A.O Hero, "Performance bounds for sparse parametric covariance estimation in Gaussian models," Conf on Acoust., Speech, and Signal Proc. (ICASSP), Prague, May 2011.

160. K. Xu, M. Kliger and A.O Hero, "Tracking communities in dynamic social networks," Conf on Social Computing, Behavioral-Cultural Modeling, and Prediction, Mar. 2011.

161. Se Un Park and AO Hero, "Myopic reconstruction and its application to MRFM data," SPIE Electronic Imaging Conference, San Jose, Jan 2011.

162. Xu Chen and AO Hero, "Video indexing and retrieval using Fisher information non-linear embedding (FINE)," SPIE Electronic Imaging Conference, San Jose, Jan. 2011.

163. C. Bazot, N. Dobigeon, J.-Y. Tourneret, and AO Hero III, "Unsupervised Bayesian analysis for gene expression analysis," Asilomar Conference on Signals, Systems and Computers, 2010.

164. A. Tibau-Puig, A. Wiesel and AO Hero, "Order-preserving factor discovery from misaligned data," IEEE Workshop on Sensor, Array and Multichannel Signal Processing (SAM), Jerusalem, Oct 2010.

165. Y. Chen, A. Wiesel, and AO Hero, "Robust Shrinkage Estimation of High-dimensional Covariance Matrices," IEEE Workshop on Sensor, Array and Multichannel Signal Processing (SAM), Jerusalem, Oct 2010.

166. A. Wiesel and AO Hero, "Distributed covariance estimation in Gaussian graphical models," IEEE Workshop on Sensor, Array and Multichannel Signal Processing (SAM), Jerusalem, Oct 2010.

167. K. Xu, M. Kliger, and AO Hero, "Identifying spammers by their resource usage patterns," Seventh annual Collaboration, Electronic messaging, Anti-Abuse and Spam (CEAS) Conference, Redmond WA, July 2010.

168. K. Xu, M. Kliger, and AO Hero, "Tracking communities of spammers by evolutionary clustering," Intl. Conf on Machine Learning (ICML), Workshop on Social Analytics: Learning from human interactions, Haifa, June 2010. (.pdf)

169. R. Mittelman and AO Hero, "Hyperspectral image segmentation and unmixing using hidden Markov trees", IEEE Conf. on Image Processing (ICIP), Hong Kong, Sept 2010.

170. K. Sricharan, R. Raich and AO Hero, "Boundary compensated kNN graphs," IEEE Workshop on Machine Learning in Signal Processing, (MLSP), Aug 2010.

171. G. Newstadt, E. Zelnio, L. Gorham, and AO Hero, "Moving target detection with SAR," Advanced Motion Processing Session, Algorithms for Synthetic Aperture Radar Imagery XVII, SPIE Defense, Security and Sensing Conference, Orlando, April 2010.

172. K. Sricharan and AO Hero, "Entropy and divergence estimation for high dimensional data," Proceedings of Joint Statistical Meetings (JSM), Aug 2010 Invited.

173. A. Tibau-Puig and AO Hero, "Order-preserving factor discovery with misaligned data," Proceedings of Joint Statistical Meetings (JSM), Aug 2010 Invited.

174. K. Xu, M. Kliger, AO Hero, "Evolutionary spectral clustering with adaptive forgetting factor," IEEE Intl. Conf on Acoustics, Speech and Signal Processing (ICASSP). April 2010.

175. Y. Chen, M. Mishali, Y.C. Eldar, AO Hero, "Modulated wideband converter with non-ideal lowpass filters," IEEE Intl. Conf on Acoustics, Speech and Signal Processing (ICASSP). April 2010.

176. G. Newstadt, E. Bashan, and AO Hero, "Adaptive search for sparse targets with informative priors," IEEE Intl. Conf on Acoustics, Speech and Signal Processing (ICASSP). April 2010.

177. K. Sricharan, R. Raich and AO Hero, "Optimized intrinsic dimension estimation using nearest neighbor graphs," IEEE Intl. Conf on Acoustics, Speech and Signal Processing (ICASSP). April 2010.

178. L. Mei, M. Sun, K.M. Carter, AO Hero, and S. Savarese, 'Unsupervised object pose classification from short video sequences,' British Machine Vision Conference, Oct. 2009.

179. N. Dobigeon, S. Moussaoui, M. Coulon, AO Hero and J.-Y. Tourneret, 'Subspace-based Bayesian blind source separation for hyperspectral imagery,' IEEE CAMSAP, 2009.

180. P. Harrington, AO Hero, "Information Theoretic Adaptive Tracking of Epidemics in Complex Networks," Allerton Conference, Sept. 2009.

181. N. Dobigeon, AO Hero and J.-Y. Tourneret, "Reconstruction Bayésienne d'images MRFM parcimonieuses," GRETSI, Grenoble, 2009.

182. N. Dobigeon, S. Moussaoui, M. Coulon, J.-Y. Tourneret and AO Hero, "Extraction de composants purs et mélange linéaire bayésiens en imagerie hyperspectrale," GRETSI, Grenoble, 2009.

183. K. Carter, R. Raich and AO Hero, "Spherical laplacian information maps (SLIM) for dimensionality reduction," IEEE Workshop on Statistical Signal Processing (SSAP), Cardiff, UK. Sept. 2009.

184. K. Sricharan, R. Raich and AO Hero, "Global performance prediction for divergence-based image registration," IEEE Workshop on Statistical Signal Processing (SSAP), Cardiff, UK. Sept. 2009.

185. A. T. Puig, A. Wiesel, and AO Hero, "A multidimensional shrinkage-thresholding operator," IEEE Workshop on Statistical Signal Processing (SSAP), Cardiff, UK. Sept. 2009.

186. A. Rao, D. States, AO Hero, and D. Engel, "Understanding Distal Transcriptional Regulation from Sequence, Expression and Interactome Perspectives," Workshop on Computational Systems Biology Bioinformatics (CSB), Stanford, Aug 2009.

187. K. S. Xu, M. Kliger, Y. Chen, P. Woolf, AO Hero, Revealing Social Networks of Spammers Through Spectral Clustering," IEEE Intl. Conf. on Communications (ICC), June 2009.

188. N. Dobigeon, AO Hero and J.-Y. Tourneret, "Bayesian sparse image reconstruction for MRFM," IEEE Intl Conf. on Acoust., Speech, and Signal Processing, Taiwan, Mar 2009.

189. Y. Chen, A. Wiesel and AO Hero, "Shrinkage estimation of high dimensional covariance matrices," IEEE Intl Conf. on Acoust., Speech, and Signal Processing, Taiwan, Mar 2009.

190. Y. Chen, Y. Gu, AO Hero, "Sparse LMS for system identification," IEEE Intl Conf. on Acoust., Speech, and Signal Processing, Taiwan, Mar 2009.

191. A. Wiesel and AO Hero, "Decomposable PCA," IEEE Intl Conf. on Acoust., Speech, and Signal Processing, Taiwan, Mar 2009.

192. K. M. Carter, R. Raich, AO Hero, "An information geometric approach to supervised dimensionality reduction ," IEEE Intl Conf. on Acoust., Speech, and Signal Processing, Taiwan, Mar 2009.

193. P. Harrington, A. Rao and AO Hero, "Classification and Subspace Selection of Multiple Biomedical Time-Series via Ensemble Learning," Summit on Translational Bioinformatics, San Francisco, Mar 2009.

194. K. Carter, K-M. Kim, R. Raich, AO Hero, "Information preserving embeddings for discrimination," Proc. of IEEE Workshop on Digital Signal Processing, Jan. 2009.

195. P. Harrington and AO Hero, "Classification of multiple time-series via boosting," Proc. of IEEE Workshop on Digital Signal Processing, Jan. 2009.

196. K. M. Carter, R. Raich, W. Finn, AO Hero, "Dimensionality reduction of flow cytometric data through information preservation," IEEE Intl Conf. on Machine Learning and Signal Processing, Cancun, Nov. 2008.

197. A. Rao, AO Hero, D.J. States, and J.D. Engel, "Using directed information for influence discovery in interconnected dynamical systems," Proc. of SPIE, San Diego, 2008. (Invited)

198. H. Bagci, R. Raich, A. E. Hero, and E. Michielssen, "Sparsity-Regularized Born Iterations for Electromagnetic Inverse Scattering," Proc. of IEEE Antennas and Propagation Symposium, 2008.

199. E. K.P. Chong, C. M. Kreucher and AO Hero, "Monte-Carlo-Based Partially Observable Markov Decision Process Approximations for Adaptive Sensing," Workshop on Discrete Event Systems (WODES-08), 2008.

200. W.G. Finn, K.M. Carter, R. Raich, A. Harrington, S.H. Kroft, A.O. Hero "Flow cytometric evaluation of reactive and dysplastic granulocyte maturation by a novel method of high dimensional data analysis," Platform presentation at the US and Canadian Academy of Pathology annual meeting. Boston, March 2009.

201. K. V. Sitwala, Y. Huang, M. Dandekar, G. Robertson, T. Cezard, M. Bilenky, N. Thiessen, Y. Zhao, T. Zeng, M. Hirst, AO Hero, S. Jones and J. Hess, "Hoxa9 and Meis1 Bind Highly Conserved Elements near Targets Regulated in Leukemia Cells," American Society of Hematology, San Francisco, Dec. 2008.

202. AO Hero, "Sequential adaptive sensing for sparse imaging," Conf on Foundations of Computational Mathematics (FOCM), Hong Kong, June 2008. (Invited)

203. E. Oubel, C. Tobon, M. De Craene, G. Avegliano, M. Huguet, AO Hero, and A. F. Frangi, "Strain analysis in myocardial infarction by using tagged MRI: correlation with delayed enhancement and perfusion," Computer assisted radiology and surgery (CARS-08), Barcelona, June 2008.

204. E. K.P. Chong, C. M. Kreucher and AO Hero, "Monte-Carlo-Based Partially Observable Markov Decision Process Approximations for Adaptive Sensing," Workshop on Discrete Event Systems (WODES-08), 2008.

205. Raghuram Rangarajan, Raviv Raich and AO Hero, "Euclidean matrix completion problems in tracking and geo-localization," IEEE Intl Conf. on Acoustics, Speech and Signal Processing , April 2008.

206. Kevin Carter and AO Hero, "Variance reduction with neighborhood smoothing for local intrinsic dimension estimation," IEEE Intl Conf. on Acoustics, Speech and Signal Processing , April 2008.

207. Kevin Carter, Raviv Raich and AO Hero, "FINE: information embedding for document classification," IEEE Intl Conf. on Acoustics, Speech and Signal Processing , April 2008.

208. Kyle Herrity, Raviv Raich and AO Hero, "Blind deconvolution for sparse molecular imaging," IEEE Intl Conf. on Acoustics, Speech and Signal Processing , April 2008.

209. Nicolas Dobigeon, Jean-Yves Tourneret, and AO Hero, "Bayesian linear unmixing of hyperspectral images corrupted by colored Gaussian noise with unknown covariance matrix," IEEE Intl Conf. on Acoustics, Speech and Signal Processing , April 2008.

210. K. Herrity, R. Raich and AO Hero, "Blind reconstruction of sparse images with unknown point spread function," Computational Imaging Conference in IS&T/SPIE Symposium on Electronic Imaging Science and Technology , San Jose, Jan. 2008.

211. Kevin Carter, Raviv Raich and AO Hero, "Learning on manifolds for clustering and visualization," Proc. of Allerton Conference , Oct. 2007.

212. A. Rao, AO Hero III, D.J. States, and J.D. Engel, "Using Directed Information to Build Biologically Relevant Influence Networks," Life Sciences Society Computational Systems Bioinformatics Conference, vol. 6, pp. 145-56, Aug. 2007.

213. K. Carter, R. Raich and AO Hero, "Debiasing for intrinsic dimension estimation," IEEE Workshop on Statistical Signal Processing (SSP), Madison WI, 2007.

214. R. Rangarajan, R. Raich and AO Hero, "Blind tracking using sparsity penalized multidimensional scaling," IEEE Workshop on Statistical Signal Processing (SSP), Madison WI, 2007.

215. K. Herrity, R. Raich and AO Hero. "Reconstructing sparse images and partially known blur functions," IEEE Intl Conf on Image Processing (ICIP), 2007.

216. D. Zhu, H. Li and AO Hero, "Reconstructing condition specific signal transduction hierarchy using Bayesian networks," RECOMB 2007.

217. A. Rao and AO Hero, "Using directed information to build biologically relevant influence networks," Intl Symposium on Medicine and Biology (ISMB/ECCB) 2007.

218. C. M. Kreucher and AO Hero, "Network sensor management for tracking and localization," Fusion 2007, Quebec. (**Invited**)

219. S. Oubel, M . deCraene, M. Gazzola, AO Hero, A.F. Frangi, "Multiview registration of cardiac tagging MRI images," IEEE Intl. Symposium on Biomedical Imaging (ISBI), June 2007.

220. R. Rangarajan, R. Raich and AO Hero, "Sequential energy allocation strategies for channel estimation," IEEE Intl. Conf on Acoust,. Speech, and Signal Processing (ICASSP), Honolulu, April 2007.

221. AO Hero, "Geometric entropy minimization (GEM) for anomaly detection and localization," Advances in Neural Information Processing Systems (NIPS), Vancouver Nov. 2006

222. N. Patwari and AO Hero III, "Demonstrating Distributed Signal Strength Location Estimation," in Proceedings of the 4th ACM Conference on Embedded Networked Sensor Systems (SenSys06), CO, November 1-3, 2006

223. J. A. Marble, R. Raich and AO Hero, "Iterative Redeployment of Illumination and Sensing (IRIS): Application to STW-SAR Imaging," Proc. of 25th Army Science Conference, Nov. 2006.

224. J. A. Marble and AO Hero, "Phase Distortion Correction for See-Through-The-Wall Imaging Radar," 2006 IEEE Intl. Conf. on Image Processing (ICIP), Atlanta 2006.

225. R. Raich and AO Hero, "Sparse image reconstruction for partially unknown blur functions," 2006 IEEE Intl. Conf. on Image Processing (ICIP), Atlanta 2006.

226. M. Ting, R. Raich and AO Hero, "Sparse image reconstruction using a sparse prior," 2006 IEEE Intl. Conf. on Image Processing (ICIP), Atlanta, 2006.

227. C. Kruecher and AO Hero, "Monte Carlo methods for sensor management in target tracking," 2006 Nonlinear Statistical Signal Processing Workshop, Cambridge, UK, Sept 2006.

228. A. Rao, AO Hero, D.J. States and J.D. Engel, "Probabilistic integration and visualization for understanding transcriptional regulation," 2006 European Conf. on Signal Processing (EUSIPCO), Florence, Sept. 2006.

229. N. Patwari and AO Hero, "Signal strength localization bounds in ad hoc and sensor networks when transmit powers are random," Third IEEE Conf on Sensor Array and Multichannel Signal Processing (SAM), Waltham, MA, July 2006. (**Invited**)

230. D. Blatt and AO Hero, "Optimal sensor scheduling via classification reduction of policy search (CROPS)," 2006 Workshop on POMDP's, Classification and Regression (Intl Conf on Automated Planning and Scheduling (ICAPS)), Cumbria UK, June 2006.

231. N. Patwari and AO Hero, "Indirect Radio Interferometric Localization via Pairwise Distances," Third IEEE Conf on Embedded Sensor Networks (EmNets), Cambridge, MA, May. 2006.

232. A. Rao, AO Hero, D.J. States and J.D. Engel, "Manifold embedding of diverse data for understanding mechanisms of transcriptional regulation," 2006 IEEE Workshop on Genomics, Signal Processing and Statistics (GENSIPS), College Station TX, May 2006.

233. D. Zhu and AO Hero, "Bayesian hierarchical model for estimating gene association network from microarray data," 2006 IEEE Workshop on Genomics, Signal Processing and Statistics (GENSIPS). College Station TX, May 2006.

234. R. Raghuram, R. Raich and AO Hero, "Single-stage waveform selection for adaptive resource constrained state estimation," 2006 IEEE Intl. Conf. on Acoustics, Speech, and Signal Processing, Toulouse France, 2006.

235. A. Rao, AO Hero, D.J. States and J.D. Engel, "Inference of biologically relevant gene influence networks using the directed information criterion," 2006 IEEE Intl. Conf. on Acoustics, Speech, and Signal Processing, Toulouse France, 2006.

236. R. Raich and AO Hero, "On dimensionality reduction for classification and its application," 2006 IEEE Intl. Conf. on Acoustics, Speech, and Signal Processing, Toulouse France, 2006.

237. S. Grikschat, J. Costa and AO Hero, "Dual rooted-diffusions for clustering and classification on manifolds," 2006 IEEE Intl. Conf. on Acoustics, Speech, and Signal Processing, Toulouse France, 2006.

238. M. Ting and AO Hero, "Detection of a random walk signal in the regime of low signal to noise ratio and long observation time," 2006 IEEE Intl. Conf. on Acoustics, Speech, and Signal Processing, Toulouse France, 2006.

239. S. Oubel, A. Frangi and AO Hero, "Complex wavelets for registration of tagged sequences," 2006 IEEE Intl. Symp. on Biomedical Imaging, April, 2006.

240. C. Kreucher, AO Hero, and K. Kastella, "A Comparison of Task Driven and Information Driven Sensor Management for Target Tracking," 44th IEEE Conference on Decision and Control (CDC) Special Session on Information Theoretic Methods for Target Tracking, December 2005.

241. D. Blatt and AO Hero, "From weighted classification to policy search," NIPS Dec. 2005.

242. P-J Chung, J.F. B'ohme, C.F. Mecklenbraucker, "Multiple Signal Detection Using the Benjamini-Hochberg Procedure," IEEE Workshop on Computational advances in multi-sensor adaptive processing (CAMSAP), Dec. 2005.

243. S. Ahn, J.A. Fessler, D. Blatt, and AO Hero, "Incremental optimization transfer algorithms: application to transmission tomography," IEEE Conf on Medical Imaging, Oct. 2005.

244. N. Patwari and AO Hero, "Manifold learning visualization of network traffic data," SIGCOMM 2005 Workshop on Mining Network Data, Philadelphia, Aug. 2005.

245. D. Blatt and AO Hero, "APOCS: a convergent source localization algorithm for sensor networks," IEEE Workshop on Statistical Signal Processing (SSP), Bordeaux, July 2005.

246. P-J Chung, J.F. B'ohme, C.F. Mecklenbraucker, "On signal detection using the Benjamini–Hochberg procedure," IEEE Workshop on Statistical Signal Processing (SSP), Bordeaux, July 2005.

247. J.A. Costa, A. Girotra and AO Hero, "Estimating Local Intrinsic Dimension with k-Nearest Neighbor Graphs," IEEE Workshop on Statistical Signal Processing (SSP), Bordeaux, July 2005.

248. D. Zhu and AO Hero, "Identifying differentially expressed genes from probe level intensities in longitudinal Affymetrix microarray experiments," IEEE Workshop on Statistical Signal Processing (SSP), Bordeaux, July 2005. (**Invited**)

249. R. Rangarajan, R. Raich, and AO Hero, "Sequential Design of Experiments for a Rayleigh Inverse Scattering Problem," IEEE Workshop on Statistical Signal Processing (SSP), Bordeaux, July 2005.

250. D. Blatt and AO Hero, "APOCS: A Rapidly Convergent Source Localization algorithm for sensor networks," IEEE Workshop on Statistical Signal Processing (SSP), Bordeaux, July 2005. (**Invited**)

251. H. Park, P.H Bland, AO Hero III, and C.R. Meyer, "Least Biased Target Selection in Probabilistic Atlas Construction," Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI), 2005.

252. D. Zhu, AO Hero, H. Cheng, M. Akimoto, R. Khanna and A. Swaroop, "Network constrained clustering for gene microarray data," Annual Meeting of International Society for Computational Biology, Detroit, 2005.

253. A. Rao, AO Hero, J.D. D. J. States, and D. Zhu, "Inferring Time-varying Network Topologies from Gene Expression Data," Proc. of IEEE Workshop on Genomic Signal Processing and Statistics (GENSIPS), Newport, May 2005.

254. D. Zhu and AO Hero, "Unsupervised posterior analysis of signaling pathways from gene microarray data," Proc. of IEEE Workshop on Genomic Signal Processing and Statistics (GENSIPS), Newport, May 2005.

255. C. Kreucher, AO Hero, K. Kastella, and B. Shapo, "Information-based Sensor Management for Simultaneous Multitarget Tracking and Identification," The Proceedings of The Thirteenth Annual Conference on Adaptive Sensor Array Processing (ASAP), June 2005.

256. C. Kreucher, K. Kastella, and AO Hero, "Multiplatform Information-based Sensor Management," The Proceedings of the SPIE International Symposium on Defense and Security, March 2005

257. C. Kreucher, M. Morelande, K. Kastella, and AO Hero, "Particle Filtering for Multitarget Detection and Tracking, " The Proceedings of The Twenty Sixth Annual IEEE Aerospace Conference, March 2005

258. S. Haykin, AO Hero, and E. Moulines, "Modeling, identification, and control of large dimensional dynamical systems," The Proceedings of the 2005 IEEE Conference on Acoustics, Speech, and Signal Processing (ICASSP) March 2005. (**Invited**)

259. C. Kreucher and AO Hero, "Non-myopic Approaches to Scheduling Agile Sensors for Multitarget Detection, Tracking, and Identification," The Proceedings of the 2005 IEEE Conference on Acoustics, Speech, and Signal Processing (ICASSP) March 2005. (**Invited**)

260. J. Costa and AO Hero, "Classification constrained dimensionality reduction," The Proceedings of the 2005 IEEE Conference on Acoustics, Speech, and Signal Processing (ICASSP), Philadelphia, March, 2005. (**Invited**)

261. D. Zhu and AO Hero, "Gene co-expression network discovery with controlled statistical and biological significance," The Proceedings of the 2005 IEEE Conference on Acoustics, Speech, and Signal Processing (ICASSP), Philadelphia, March, 2005. (**Invited**)

262. D. Zhu and AO Hero, "Network constrained clustering for gene microarray data," The Proceedings of the 2005 IEEE Conference on Acoustics, Speech, and Signal Processing (ICASSP), Philadelphia, March, 2005.

263. R. Rangangaran, R. Raich and AO Hero, "Optimal experimental design for an inverse scattering problem," The Proceedings of the 2005 IEEE Conference on Acoustics, Speech, and Signal Processing (ICASSP), Philadelphia, March, 2005.

264. AO Hero and D. Blatt, "Sensor network source localization via projection onto convex sets (POCS)," The Proceedings of the 2005 IEEE Conference on Acoustics, Speech, and Signal Processing (ICASSP), March, 2005. (**Invited**)

265. "D. Blatt and AO Hero, Tests for global maximum of the likelihood function," The Proceedings of the 2005 IEEE Conference on Acoustics, Speech, and Signal Processing (ICASSP), Philadelphia, March, 2005.

266. J. Costa, N. Patwari and AO Hero, "Achieving high-accuracy distributed localization in sensor networks," The Proceedings of the 2005 IEEE Conference on Acoustics, Speech, and Signal Processing (ICASSP), Philadelphia, March, 2005.

267. E. Oubel, H. Neemuchwala, AO Hero, L. Boisrobert, M. Laclaustra, A. Frangi, "Assessment of artery dilation by using image registration based on spatial features," Medical Imaging 2005: Image Processing, Eds. J.M Fitzpatrick and J.M. Reinhardt, Proceedings of SPIE vol. 5747, 2005.

268. H. Neemuchwala and AO Hero, "Image registration in high dimensional feature space," Proc. of SPIE Conference on Electronic Imaging, San Jose, 2005. (**Invited**)

269. J. Costa and AO Hero, "Entropy and dimension estimation," International Symposium on Information Theory, Chicago, July, 2004.

270. P.-J. Chung, J.F. B´ohme, AO Hero, and C.F. Mecklenbrauker, "Signal detection using a multiple hypothesis test," In Proc. Third IEEE Sensor Multichannel Signal Processing Workshop, Barcelona, Spain, July 2004.

271. C. Kreucher, AO Hero, and K. Kastella, "Multiple Model Particle Filtering for Multitarget Tracking," The Proceedings of The Twelfth Annual Conference on Adaptive Sensor Array Processing (ASAP), March 16 - 18 2004.

272. C. Kreucher, D. Blatt, AO Hero, and K. Kastella, "Adaptive Multi-modality Sensor Scheduling for Detection and Tracking of Smart Targets," The 2004 Defense Applications of Signal Processing Workshop (DASP), October 31 - November 5 2004.

273. S. Ahn, J.A. Fessler, D. Blatt, and AO Hero, "Incremental optimization transfer algorithms: application to transmission tomography," IEEE Conf on Medical Imaging, Nov. 2004.

274. C. Kreucher, AO Hero, K. Kastella, and D. Chang, "Efficient Methods of Non-myopic Sensor Management for Multitarget Tracking," The Proceedings of the 43rd IEEE Conference on Decision and Control (CDC), December 14 - 17 2004.

275. J. Costa and AO Hero, "Learning intrinsic dimension and intrinsic entropy of high dimensional datasets," Proc. of EUSIPCO, Vienna, Sept, 2004. (**Invited**)

276. M. Ting and AO Hero, "Two state Markov modelling and detection of single electron spin signals," Proc. of EUSIPCO, Vienna, Sept, 2004. (**Invited**)

277. C. Kreucher, AO Hero and K. Kastella, "Adaptive Multimodality Sensor Scheduling for Target Detection and Tracking Applications," DASP-04. (**Invited**)

278. H. Neemuchwala and AO Hero and P. Carson and C. Meyer, "Local feature matching using entropic graphs," Proc. of IEEE Intl. Symp. on Biomedical Imaging (ISBI), April 2004

279. G. Fleury, AO Hero, S. Zareparsi, and A. Swaroop, "Pareto Depth Sampling Distributions for Gene Ranking," Proc. of IEEE Intl. Symp. on Biomedical Imaging (ISBI), April 2004.

280. D. Blatt and AO Hero, "Distributed maximum likelihood estimation in sensor networks," Proc. of IEEE Int. Conf. on Acoust. Speech and Sig. Proc, Montreal, May, 2004. (**Invited**)

281. N. Patwari and AO Hero, "Manifold learning algorithms for localization in wireless sensor networks," Proc. of IEEE Int. Conf. on Acoust. Speech and Sig. Proc, Montreal, May, 2004. (**Invited**)

282. M.-F. Shih and AO Hero, "Network Topology Discovery using Finite Mixture Models," Proc. of IEEE Int. Conf. on Acoust. Speech and Sig. Proc., Montreal, May, 2004.

283. J. Costa and AO Hero, "Manifold learning using Euclidean K-nearest neighbor graphs," Proc. of IEEE Int. Conf. on Acoust. Speech and Sig. Proc, Montreal, May, 2004. (**Invited**)

284. J. Costa and AO Hero, "Entropic graphs for Manifold Learning," Proc. of IEEE Asilomar Conf. on Sig, Syst., and Comm.,, Pacific Grove CA, Nov. 2003. (**Invited**)

285. C.-Y. Yip, AO Hero, D. Rugar, and J. Fessler, "Detection of Bistatic Electron Spin Signals in Magnetic Resonance Force Microscopy (MRFM)," Proc. of IEEE Asilomar Conf. on Sig, Syst., and Comm., Pacific Grove CA, Nov. 2003, (**Invited**)

286. N. Patwari and AO Hero, "Using Proximity and Quantized RSS for Sensor Localization in Wireless Networks," Proc. of 2nd International ACM Workshop on Wireless Sensor Networks and Applications (WSNA), San Diego, CA, Sept, 2003.

287. C. Hory, M. Ting and AO Hero, "Frequency estimation derived from a dynamical system analysis," in Proceedings of IEEE Workshop Statistical Signal Processing, St. Louis, Sept. 2003.

288. M. Ting and AO Hero, "Detection of electron spin in a MRFM cantilever experiment," in Proceedings of IEEE Workshop Statistical Signal Processing, St. Louis, Sept. 2003.

289. AO Hero, "Gene selection and ranking with microarray data," paper accompanying plenary talk. Proc. of Intl Conf on Signal Processing and Applications, Paris, July 2003. (**Invited**)

290. N. Patwari and AO Hero, "Hierarchical censoring for distributed detection in wireless sensor networks," Proc. Of ICASSP, Hong Kong, April 2003 (**Invited**).

291. C. Kreucher, K. Castella, and AO Hero, "Multitarget sensor management using alpha divergence measures," in Proc. First IEEE Conference on Information Processing in Sensor Networks, Palo Alto, April 2003 (Won **General Dynamics Medal Paper Award**).

292. C. Kreucher, K. Kastella, and AO Hero, "A Bayesian Method for Integrated Multitarget Tracking and Sensor Management," 6th International Conference on Information Fusion, Cairns, Australia, July 2003.

293. C. Kreucher, C., Kastella, K., and Hero, A., "Tracking Multiple Targets Using a Particle Filter Representation of the Joint Multitarget Probability Density'," SPIE, San Diego California, August 2003.

294. C. Kreucher, K. Kastella, and AO Hero, "Information-based sensor management for multitarget tracking," SPIE, San Diego, California, August 2003.

295. C. Kreucher, K. Kastella, and AO Hero, "Particle filtering and information prediction for sensor management," 2003 Defense Applications of Data Fusion Workshop, Adelaide, Australia, July 2003.

296. C. Kreucher, K. Kastella, and AO Hero, "Information Based Sensor Management for Multitarget Tracking," Proc. Workshop on Multiple Hypothesis Tracking: A Tribute to Samuel S. Blackman, San Diego, CA, May 30, 2003.

297. N. Patwari and AO Hero, "Location estimation accuracy in wireless sensor networks," Proc. of IEEE Asilomar Conference on Signals, Systems and Computers, Pacific Grove, CA, Nov. 2002.

298. K. Siddiqui, AO Hero and M. Siddiqui, "Mathematical morphology applied for spot segmentation and quantification of gene microarray images," Proc. of IEEE Asilomar Conference on Signals, Systems and Computers, Pacific Grove, CA, Nov. 2002.

299. T. Kragh and AO Hero, "Emission tomography from compressed list-mode data," Proc. of IEEE Asilomar Conference on Signals, Systems and Computers, Pacific Grove, CA, Nov. 2002 (**Invited**).

300. AO Hero and G. Fleury, "Gene filtering using posterior Pareto fronts," Proc. of IEEE Asilomar Conference on Signals, Systems and Computers, Pacific Grove, CA, Nov. 2002 (**Invited**).

301. H. Neemuchwala, AO Hero and P. Carson, "Image registration using entropic graph-matching criteria," Proc. of IEEE Asilomar Conference on Signals, Systems and Computers, Pacific Grove, CA, Nov. 2002 (**Invited**).

302. AO Hero and G. Fleury, "Posterior Pareto front analysis for gene filtering'," Proc. of Workshop on Genomic Signal Processing and Statistics (GENSIPS), Raleigh NC, Oct 11-13 2002.

303. T. Kragh and AO Hero, "Image resolution-variance tradeoffs using the uniform Cramèr-Rao bound," Proc. XI European Signal Processing Conference, Toulouse France, Sept 2002.

304. O. Michel and AO Hero "Entropic graph applications," Proc. XI European Signal Processing Conference, Toulouse France, Sept 2002.

305. G. Fleury, AO Hero, S. Yosida and A. Swaroop, "Pareto analysis for gene filtering in microarray experiments," Proc. XI European Signal Processing Conference, Toulouse France, Sept 2002.

306. AO Hero and C. Shih, "Recent Trends in Tomography for Large Scale Telecommunications Networks," Proc. of URSI General Assembly, Maastricht, Aug. 2002 (**Invited**).

307. J. Li and AO Hero, "A spectral approach to statistical polar shape modeling," Proc. of IEEE Int. Conf. on Image Proc., Rochester, NY, Oct 2002.

308. M.-F. Shih and AO Hero, "Unicast based inference of network link delay distributions using mixed finite mixture models," Proc. of IEEE Intl. Conf. on Acoust., Speech, and Signal Processing, Orlando, May 2002.

309. M. Godavarti and AO Hero, "Diversity and degrees of freedom in wireless communications," Proc. of IEEE Intl. Conf. on Acoust., Speech, and Signal Processing, Orlando, May 2002.

310. RG Baraniuk, CS Burrus, BM Hendricks, GL Henry, AO Hero III, DH Johnson, DL Jones, J Kusuma, RD Nowak, JE Odegard, LC Potter, K Ramchandran, RJ Reedstrom, P Schniter, IW Selesnick, DB Williams, and WL Wilson, "Connexions: DSP education for a networked world, " Proc. of IEEE Intl. Conf. on Acoust., Speech, and Signal Processing, Orlando, May 2002.

311. G. Fleury, AO Hero, S. Yosida and A. Swaroop, "Clustering Genetic Signals from Retinal Microarray Data," Proc. of IEEE Intl. Conf. on Acoust., Speech, and Signal Processing, Orlando, May 2002. (**Invited**)

312. R. Baraniuk, and C. Burns, and B. Hendricks, and G. Henry, and A. Hero, and D. Johnson, and D. Jones, and J. Kusuma, and R. Nowak, and J. Odegard, and L. C. Potter, and K. Ramchandran, "Connexions: DSP education for a networked world," Proc. of IEEE Intl. Conf. on Acoust., Speech, and Signal Processing, Orlando, May 2002. (**Invited**)

313. J. Costa, AO Hero, and C. Vignat, "A characterization of the multivariate distributions maximizing Rényi entropy," IEEE Intl. Symposium on Inform. Theory, Laussane, June 2002.

314. M. Godavarti and AO Hero, "Convergence of differential entropies," IEEE Intl. Symposium on Inform. Theory, Laussane, June 2002.

315. M. Godavarti and AO Hero, "Multiple antenna acapacity in a deterministic Rician fading channel," IEEE Intl. Symposium on Inform. Theory, Laussane, June 2002.

316. H. Neemuchwala, AO Hero, P. L. Carson, "Feature Coincidence Trees for Registration of Ultrasound Images," AIUM 46th Annual Convention, Nashville, March 10-13, J. Ultras. Med., 21, S55, 2002.

317. P.L. Carson, J.F. Kruecker, C.R. Meyer, G.L. LeCarpentier, J.B. Fowlkes, M.A. Roubidoux, H. Neemuchwala, and AO Hero, "Image Registration: Breast Applications, Accuracy and Advanced Metrics," in Carson PL, Parker KJ, et al., Ultrasound Image Registration, Categorical Course, AIUM 46th Annual Convention, Nashville, March 10-13, J. Ultras. Med., 21, S73, 2002.

318. M. Godavarti and AO Hero, "(MIMO) capacity for (R)ician fading channels ," Proc. of Int. Union of Radio Sciences (URSI), Boulder CO, Jan. 2002.

319. J. D. Gorman and AO Hero, "Alpha-divergence for feature pruning and indexing of biological databases," Proc. of Int. Union of Radio Sciences (URSI), Boulder CO, Jan. 2002 (**Invited**).

320. T. Kragh and AO Hero, "Poisson emission tomography using compressed list mode data," Proc. of Int. Union of Radio Sciences (URSI), Boulder CO, Jan. 2002 (**Invited**).

321. Shigeo Yoshida, Jindan Yu, Rafal Farjo, Mohammad Othman, Alan Mears, Beverly Yashar, Sean MacNee, Matt Studt, Sujata Sheth, AO Hero, Debashis Ghosh, Todd Carter, David Lockhart, Carrolee Barlow, and Anand Swaroop, "Insights into retinal development and aging using gene microarrays," 9th Asian-Pacific Conference on Clinical Biochemistry, New Delhi India, 2002.

322. J. Li and AO Hero, "Shape extraction and denoising via polar representations," SIAM conference on Imaging Science, Boston, Sept. 2001 (**Invited**).

323. R. Gupta and AO Hero, "Decentralized image compression and reconstruction for recognition tasks," SIAM conference on Imaging Science, Boston, Sept. 2001 (**Invited**).

324. AO Hero, "Alpha-divergence for image indexing and retrieval," Joint Statistical Meetings, Atlanta GA, Aug. 2001 (**Invited**).

325. B. Ma, S. Lakshmnanan and A. 0. Hero, "A Robust Bayesian Multisensor Fusion Algorithm For Joint Lane And Pavement Boundary Detection," Proc. of IEEE Int. Conf. on Intelligent Vehicles, Tokyo Japan, Oct 2001.

326. AO Hero, Bing Ma and Olivier Michel, "Imaging Applications of Stochastic Minimal Graphs," Proc. of IEEE Int. Conf. on Image Processing, Thessaloniki Greece, Oct 2001. (**Invited**)

327. Huzefa Neemuchwala and AO Hero and Paul Carson, "Feature coincidence trees for registration of ultrasound breast images," Proc. of IEEE Int. Conf. on Image Processing, Thessaloniki Greece, Oct 2001. (**Invited**)

328. J. Li and AO Hero, "A spectral method for solving elliptic equations for surface reconstruction and 3D active contours," Proc. of IEEE Int. Conf. on Image Processing, Thessaloniki Greece, Oct 2001.

329. R. Gupta and AO Hero, "Performance limits of hypothesis testing from vector quantized data," IEEE Intl. Symposium on Inform. Theory, Washington DC, July 2001.

330. M. Godavarti, AO Hero and T. Marzetta, "Min-capacity of a multiple-antenna wireless channel in a static Rician fading environment," IEEE Intl. Symposium on Inform. Theory, Washington DC, July 2001.

331. M. Godavarti and AO Hero, "Stability anlaysis of the sequential partial update LMS algorithm," Proc. of IEEE Int. Conf. on Acoust. Speech and Sig. Proc. (ICASSP), Salt Lake City UT May 2001.

332. A.-G. Ziotopoulos, AO Hero, and K. M. Wasserman, "Estimation of network link loss rates via chaining in multicast trees'," Proc. of IEEE Int. Conf. on Acoust. Speech and Sig. Proc. (ICASSP), Salt Lake City UT May 2001.

333. M-F Shih and AO Hero, "Unicast Inference of Network Link Delay Distributions from Edge Measurements," Proc. of IEEE Int. Conf. on Acoust. Speech and Sig. Proc. (ICASSP), Salt Lake City UT May 2001. (**Invited**).

334. H.S. Kim and AO Hero, "Comparison of GLR and Maximal Invariant Detectors under Structured Clutter Covariance," Proc. of IEEE Int. Conf. on Acoust. Speech and Sig. Proc. (ICASSP), Salt Lake City UT May 2001.

335. AO Hero, "Divergence matching criteria for registration, indexing and retrieval," Workshop on Digital Libraries: Data Modeling and Representation, Institute for Mathematics and its Applications, Minneapolis, MN, Jan. 2001 (**Invited**).

336. AO Hero and H.S. Kim, "Target detection on an unknown segmented clutter background," 2001 Proc. of Int. Union of Radio Sciences (URSI), Boulder CO, Jan. 2001.

337. T Kragh and AO Hero, "Optimal image reconstruction under a spatial resolution constraint," 2000 Proc. of Int. Union of Radio Sciences (URSI), Boulder CO, Jan. 2001 (**Invited**).

338. AO Hero and M. Godavarti, "Smart Antennas for Secure Networks," 2001 Proc. of Int. Union of Radio Sciences (URSI), Boulder CO, Jan. 2001.

339. AO Hero, A. Sauve amd T. Kragh, "Image reconstruction for a novel Compton scatter tomograph," Proc. of IEEE Asilomar Conference on Sig, Syst., and Comm., Pacific Grove CA, Oct. 2000.

340. H. S. Kim and AO Hero, "When is a maximal invariant hypothesis test better than the GLRT?" Proc. of IEEE Asilomar Conference on Sig, Syst., and Comm., Pacific Grove CA, Oct. 2000 (**Invited**).

341. D. W. Bliss, K. W. Forsythe, AO Hero, and A. L. Swindlehurst, "MIMO Environmental Capacity Sensitivity," Proc. of IEEE Asilomar Conference on Sig, Syst., and Comm., Pacific Grove CA, Oct. 2000.

342. R. Piramuthu and AO Hero, "Performance of Parametric Shape Estimators for 2–D and 3–D Imaging Systems," Proc. of 2000 Nuclear Science Symposium and Medical Imaging Conference (NSS-MIC), Lyon, FRANCE, Oct. 2000.

343. T, Kragh, AO Hero, "Bias-resolution-variance tradeoffs for single pixel estimation tasks using the Uniform Cramer Rao Bound UCRB," Proc. of 2000 Nuclear Science Symposium and Medical Imaging Conference (NSS-MIC), Lyon, FRANCE, Oct. 2000.

344. W. Stark, H. Wang, A. Worthen, P. Liang, AO Hero, S. Lafortune, and D. Teneketzis, "Low energy wireless communication network design," Proc. of 2000 Allerton Conference on Communications, Control and Computing, Monticello IL, Oct. 2000.

345. B. Ma, AO Hero, J. Gorman and O. Michel, "Image registration with minimal spanning tree algorithm," Proc. of 2000 IEEE Conf. on Image Processing (ICIP), Vancouver, CANADA, Oct. 2000.

346. H.S. Kim and AO Hero III, "Adaptive target detection across a clutter boundary: GLRT's and maximally invariant detectors," Proc. of 2000 IEEE Conf. on Image Processing (ICIP), Vancouver, CANADA, Oct. 2000.

347. AO Hero and R. Piramuthu, "3D shape estimation under a polar shape model," SIAM minisymposium on PDE-based Image Processing, Puerto Rico, July 2000 (**Invited**).

348. AO Hero and T. Marzetta, "Optimization of a functional over $\mathcal{C}^{M \times T}$ arising in space-time coding," SIAM Meeting, Puerto Rico, July 2000.

349. O. Michel, P. Flandrin and AO Hero III, "Automatic extraction of time-frequency skeletons with minimal spanning trees," Proc. of 2000 IEEE Int. Conf. on Acoust., Speech, and Sig. Proc., (ICASSP-00), Istanbul, Turkey, June 2000.

350. R. Gupta and AO Hero III, "Transient Behavior of Fixed Point (LMS) Adaptation," Proc. of 2000 IEEE Int. Conf. on Acoust., Speech, and Sig. Proc., (ICASSP-00), Istanbul, Turkey, June 2000.

351. AO Hero and T. L. Marzetta, "Space-Time Cut-off Rate for the Flat Rayleigh Fading Channel," 2000 IEEE Symposium on Inform. Theory, Sorento, Italy, June 2000.

352. AO Hero and O. Michel, "Rènyi Information Divergence via Measure Transformations on Minimal Spanning Trees," 2000 IEEE Symposium on Inform. Theory, Sorento, Italy, June 2000.

353. S. Hong, R. Gupta, W. E. Stark, AO Hero, "Performance and complexity analysis of VLSI multi-carrier receivers for low-energy wireless communications," Proceedings of the IEEEE 2000 Vehicular Technology Conference, May 2000.

354. M. Godavarti and AO Hero III, "Stochastic partial update LMS algorithm for adaptive arrays'," Proc. of 2000 IEEE Workshop on Sensors, Arrays and Multichannel Signal Processing (SAM-00),

355. AO Hero III and T.L. Marzetta, "Optimal Signal Constellations for Space-Time Rayleigh Channels," Proc. of 2000 IEEE Workshop on Sensors, Arrays and Multichannel Signal Processing (SAM-00), Boston, March 2000.

356. AO Hero, S. Chretien, R. Piramuthu, "Accelerated Maximum Likelihood Reconstruction via Proximal Point Iterations with Kullback Penalty," 2000 Proc. of Int. Union of Radio Sciences (URSI), Boulder CO, Jan. 2000.

357. AO Hero, "Parametric Estimation for Granulometry Problems," 2000 Proc. of Int. Union of Radio Sciences (URSI), Boulder CO, Jan. 2000 (**Invited**).

358. R. Gupta and AO Hero, "Limitations on Detection and Classification from Compressed Images," 2000 Proc. of Int. Union of Radio Sciences (URSI), Boulder CO, Jan. 2000.

359. AO Hero, "On the problem of granulometry for a degraded Boolean image model," Proc. of 1999 IEEE Conf. on Image Processing, Kobe Japan, Oct. 1999.

360. B. Ma, S. Lakshmanan and AO Hero, "Road and Lane Edge Detection with Multisensor Fusion Methods," Proc. of 1999 IEEE Conf. on Image Processing, Kobe Japan, Oct. 1999.

361. O. Michel, P. Flandrin, AO Hero, "Détection de structures dans le plan temps fréquence à l'aide de graphes minimaux," GRETSI-99, Vannes France, Sept. 1999.

362. J.D. Gorman, AO Hero, C. Kreucher, B. Ma, "Graph entropic approaches for multi-sensor image registration," 1999 AFRL/SNRA Workshop on Registration, Wright Patterson AFB, Dayton, OH, Sept. 1999.

363. A.C. Sauve, AO Hero, W. L. Rogers and J.A. Fessler, "Image Reconstruction for 3D Electronically Collimated SPECT camera model," Poceedings 1999 International Meeting on Fully 3-Dimensional Image Reconstruction in Radiology and Nuclear Medicine, Egmond aan Zee, The Netherlands, June 1999.

364. AO Hero and O. Michel, "Estimation of Rényi Information Divergence via Pruned Minimal Spanning Trees," Proc. of 1999 IEEE Workshop on Higher Order Statistics, Caesaria Israel, June 1999.

365. M. Nikolova and AO Hero, "Noisy word recognition using edge preserving priors and moment matrix discriminants," Proc. of 1999 IEEE Workshop on Higher Order Statistics, Caesaria Israel, June 1999.

366. M. Godavarti and AO Hero, "Stability bounds on the step size for the partial update LMS algorithm," Proc. of 1999 Int. Conf. on Acoust., Speech, and Sig. Proc. (ICASSP-99), Phoenix, March 1999.

367. R. Gupta and AO Hero, "Theoretical analysis of power-performance tradeoffs in reduced resolution adaptive filtering," Proc. of 1999 Int. Conf. on Acoust., Speech, and Sig. Proc. (ICASSP-99), Phoenix, March 1999.

368. A. C. Sauve, AO Hero, W. L. Rogers, and N. Clinthorne, "Hemispheric spatial sampling study and 3D image reconstruction using statistical iterative algorithms for a Compton SPECT camera model," Proceedings IEEE Nuclear Science Symposium and Medical Imaging Conference, Toronto, ON, Nov. 1998.

369. J. H. Kang, W.E. Stark and AO Hero, "Turbo codes for fading and burst channels," Proceedings GLOBECOM, Sydney, Australia Oct. 1998.

370. AO Hero and R. Gupta, "Power vs. Performance Tradeoffs for Reduced Resolution Adaptive Equalizers," IEEE Conf. on Military Communications (MILCOM), Oct. 1998.

371. R. Piramuthu and AO Hero, "Side information averaging method for PML emission tomography," 1998 Intern. Conf. on Image Processing, Chicago, IL, Oct. 1998.

372. M. Nikolova, AO Hero, "Segmentation of Road Edges from a Vehicle-mounted Imaging Radar,'" Proc. of the 1998 IEEE Workshop on Statistical Signal and Array Processing , Sept. 1998.

373. R. Gupta and AO Hero, "Optimal Bit Allocation for the Quantized LMS Adaptive Algorithm," Proc. of the 1998 IEEE Workshop on Statistical Signal and Array Processing , Sept. 1998.

374. S. Chretien and AO Hero,"Acceleration of the EM algorithm via proximal point iterations," Proc. of the 1998 IEEE Intern. Symposium on Inform. Theory, Aug. 1998.

375. AO Hero and R. Gupta, "Optimal bit allocation strategies for reduced power adaptive channel equalization," Proc. of the 1998 Int. Symposium on Inform. Theory, Aug. 1998.

376. AO Hero, "Asymptotic minmax methods for incorporation of uncertain side information into penalized ML image reconstructions," Mathematisches Forschungsinstitut Oberwolfach, Oberwolfach Germany, Jan 1999 (Invited).

377. AO Hero, "Robust Entropy Estimation via Pruned Minimal Spanning Trees," Bayesian Signal Processing Workshop, Isaac Newton Institute, Cambridge UK, July. 1998 (Invited).

378. AO Hero and O. Michel, "Robust entropy estimation strategies based on edge weighted random graphs," Proc. of Int. Soc. for Optical Engineering (SPIE) Symposium on Optical Science, San Diego, July 1998 (Invited).

379. AO Hero and R. Piramuthu, "Penalized maximum likelihood image reconstruction with min-max incorporation of noisy side information," Proc. of 1998 Int. Conf. on Acoust., Speech, and Sig. Proc., Seattle, May 1998.

380. AO Hero and H. Hadinejad-Marham, "Modulation discrimination in digital communications using higher order moments," Proc. of 1998 Int. Conf. on Acoust., Speech, and Sig. Proc., Seattle, May 1998.

381. AO Hero "Robust pattern recognition via pruning of random graphs," 1998 Proc. of Int. Union of Radio Sciences (URSI), Boulder CO, Jan. 1998.

382. AO Hero "Robust automated target recognition under target and clutter uncertainty," 1998 Proc. Int. Union of Radio Sciences (URSI), Boulder CO, Jan. 1998.

383. AO Hero, "Moment Matrices for Recognition of Spatial Pattern in Noisy Images," in Proceedings of 1997 IEEE Int. Conf. Image Proc., Vol. 2, pp. 378-382, Santa Barbara, 1997.

384. AO Hero and C. Guillouet, "Robust Detection of SAR/IR Targets via Invariance," in Proceedings of 1997 IEEE Int. Conf. Image Proc., Vol 3, pp. 472-475, Santa Barbara, 1997.

385. B. Ma, S. Lakshmanan, AO Hero, "Deformable template models for detecting road edges from mounted X-band radar," in Proceedings of 1997 IEEE Int. Conf. Image Proc., Santa Barbara, Vol. 1, pp. 857-860, 1997.

386. AO Hero, R. Piramuthu, and S. Titus, "A method for ECT image reconstruction with uncertain MRI side information using asymptotic marginalization," Proceedings of 1997 IEEE/EURASIP Worskshop on Nonlinear Signal and Image Processing, Mackinac Island, MI, Sept. 1997 (**Invited**).

387. C.Y. Ng, N.H. Clinthorne, J.A. Fessler, AO Hero, W.L. Rogers, "Structured bias originating from interaction between a penalized objective function and the system matrix," Society of Nuclear Medicine 44th Annual Meeting, San Antonio, TX, 1997.

388. A. Sauve, AO Hero and W. L. Rogers, "System modeling and spatial sampling techniques for simplification of transition matrix in 3D Electronically Collimated SPECT," 1997 International Meeting on Fully 3-Dimensional Image Reconstruction in Radiology and Nuclear Medicine, Pittsburg, June 1997.

389. AO Hero and O. Michel, "Robust estimation of point process intensity features using K-minimal spanning trees," Proceedings of 1997 IEEE International Symposium on Information Theory (ISIT), Ulm Germany, June 1997.

390. I. Sharfer and AO Hero, "Iterative maximum likelihood sequence estimation for CDMA systems using grouped ascent and the DWT," Proceedings of 1997 IEEE Workshop on Signal Processing Advances in Communications, Paris, pp. 137-140, April 1997.

391. S.A. Titus, AO Hero, and J.A. Fessler, "Penalized likelihood emission image reconstruction with uncertain boundary information," Proceedings of 1997 IEEE Conf. on Acoustics, Speech and Signal Processing (ICASSP), Munich, Vol. 4, pp. 2813-2816, April 1997.

392. E.J. Zalubas, J.C. O'Neill, W.J. Williams, and AO Hero, "Shift and scale invariant detection," Proceedings of 1997 IEEE Conf. on Acoustics, Speech and Signal Processing (ICASSP), Munich, pp. 3637-3640, April 1997.

393. AO Hero and Y. Zhang and W. L. Rogers, "Tomographic feature detection using parallelotope bounded error algorithm," Proceedings of 1997 IEEE Conf. on Acoustics, Speech and Signal Processing (ICASSP), Munich, Vol 4, pp. 2849-2852, April 1997.

394. W.J. Williams, E, Zalubas, AO Hero, "Word spotting in bitmapped documents," Proceedings of 1997 Symposium on Document Image Understanding Technology, Annapolis, MD, pp. 214-227, April 1997 (**Invited**).

395. Chor-yi Ng, N. Clinthorne, J.A. Fessler, M. Usman, AO Hero, and W.L. Rogers, "Preliminary studies on the feasibility of addition of a vertex view to conventional brain SPECT," Proceedings of the 1996 IEEE Nuclear Science Symposium and Medical Imaging Conference, Anaheim CA, pp. 1561-1565, Nov. 1996.

396. J. O'Neill, AO Hero, and W.J. Williams, "Word spotting via spatial point processes," Proceedings of the 1996 IEEE Conference on Image Processing, Laussane, Switzerland.

397. S.R. Titus, AO Hero, and J.A. Fessler, "Improved penalized likelihood reconstruction of anatomically correlated emission data," Proceedings of the 1996 IEEE Conference on Image Processing, Laussane, Switzerland.

398. E. Zalubas, W.J. Williams, and AO Hero, "Separating desired image and signal invariant components from extraneous variations," Proceedings of SPIE Advanced Signal Processing Algorithms, Architectures and Implementations, VI, vol. 2846, pp. 262-272, 1996.

399. W.L. Rogers, N.H. Clinthorne, J.A. Fessler, Y. Zhang, L. Hua, C. Ng, M. Usman, AO Hero, "Value of a vertex view for brain SPECT," Meeting of the Society of Nuclear Medicine, June 1996.

400. B. Baygun and AO Hero, "An iterative solution to the min-max simultaneous detection and estimation problem," Proceedings of 1996 IEEE Workshop on Statistical Signal and Array Processing, Corfu, Greece, June. 1996.

401. AO Hero, "Optimal detection of a target straddling a linear boundary in clutter," Book of Abstracts of the 1996 Meeting of the Classification Society of North America, Amherst, MA, June 1996 (**Invited**).

402. I. Sharfer and AO Hero "Asynchronous sequence estimation via the EM algorithm and the wavelet transform," Proceedings of the IEEE 1995 International Conference on Acoustics, Speech and Signal Processing, Atlanta, pp. 1864-1867, May 1996.

403. D. L. Goeckel, AO Hero, and W. E. Stark, "Blind channel identification for direct sequence spread spectrum systems," Proceedings of 1995 IEEE Conference on Military Communications, San Diego, Nov. 1995.

404. R. Goyal, AO Hero, F. Morady, "Simulation of cardiac memory in a computer model utilizing reactive coupling," Meeting of the International Society for Computerized Electrocardiology, New York, Oct. 1995.

405. AO Hero and M. Usman, "Achievable regions in the bias-variance plane for parametric estimation problems," IEEE Int'l. Symposium on Information Theory, Vancouver, Sept. 1995.

406. AO Hero and J. A. Fessler, "Sufficient conditions for norm convergence of the EM algorithm," IEEE Int'l. Symposium on Information Theory, Vancouver, Sept. 1995.

407. AO Hero and R. Delap, "Beamforming in slow Rayleigh fading environments: narrowband and wideband results," 3rd ARPA Workshop on Adaptive Sensor Array Processing, M.I.T. Lincoln Laboratory, Lexington MA, March 1995 (**Invited**).

408. A-E Badel, O. Michel, and AO Hero, "Arbres de règression pour l'analyse des séries chaotiques," Proceedings of GRETSI, Juan-les-Pins, France, Sept. 1995.

409. O. Michel, P. Flandrin and AO Hero, "Tree-based modeling, prediction, and analysis of chaotic time series," Proceedings of IEEE Workshop on Non-linear Signal Processing, Halkiditi Greece, June 1995.

410. S. Titus, AO Hero and J. A. Fessler, "NMR object boundaries: B-spline modeling and estimator performance," Proceedings of the IEEE 1995 International Conference on Acoustics, Speech and Signal Processing, Detroit, pp. 2423-2426, 1995.

411. I. Sharfer and AO Hero, "Spread spectrum sequence estimation and bit synchronization using an EM-type algorithm," Proceedings of the IEEE 1995 International Conference on Acoustics, Speech and Signal Processing, Detroit, pp. 1864-1867, 1995.

412. O. Michel and AO Hero, "Tree structured non-linear signal modeling and prediction," Proceedings of the IEEE 1995 International Conference on Acoustics, Speech and Signal Processing, Detroit, pp. 1689-1692, 1995.

413. M. Usman, AO Hero and J. A. Fessler, "Uniform CR bound: implementation issues and applications to image reconstruction," Proceedings of the IEEE 1994 Nuclear Science Symposium and Medical Imaging Conference, Norfolk VA, Oct. 1994.

414. M. Usman, AO Hero and J. A. Fessler, "Bias-variance tradeoffs analysis using uniform CR bound for images," Proceedings of the 1994 IEEE Conference on Image Processing, Alexandria VA, pp. 835-839, Nov. 1994.

415. AO Hero and R.A. Delap, "Adaptive beamforming for slow Rayleigh fading signals," Proceedings of IEEE Workshop on Statistical Signal and Array Processing, Quebec, Canada, pp. 169-172, June 1994 (**Invited**).

416. M. Usman and AO Hero, "Recursive CR-bounds: algebraic and statistical acceleration," Proceedings of the IEEE 1994 International Conference on Acoustics, Speech and Signal Processing, Adelaide, Australia, pp. IV.5-8, April 1994.

417. M.L. Brown, W.J. Williams and AO Hero, "Recursive CR-bounds: algebraic and statistical acceleration," Proceedings of the IEEE 1994 International Conference on Acoustics, Speech and Signal Processing, Adelaide, Australia, pp. IV.305-308, April 1994.

418. Y. Zhang, AO Hero, and W.L. Rogers, "Simultaneous confidence intervals for image reconstruction problems," Proceedings of the IEEE 1994 International Conference on Acoustics, Speech and Signal Processing, Adelaide, Australia, pp. V.317-320, April 1994.

419. M. Usman, AO Hero, J.A. Fessler and W.L. Rogers, "Bias-variance tradeoffs analysis using uniform CR bound for a SPECT system," Proceedings of the IEEE Nuclear Science Symposium and Medical Imaging Conference, San Francisco, pp. 1463-1467, Nov. 1993.

420. J.A. Fessler and AO Hero, "New complete-data spaces and faster algorithms for penalized-likelihood emission tomography," Proceedings of the IEEE Nuclear Science Symposium and Medical Imaging Conference, San Francisco, pp. 1897-1901, Nov. 1993.

421. N. Petrick, AO Hero, N.H. Clinthorne, and W.L. Rogers, "A fast least squares arrival time estimator for scintillation pulses," Proceedings of the IEEE Nuclear Science Symposium and Medical Imaging Conference, San Francisco, pp. 646-650, Nov. 1993.

422. J.A. Fessler and AO Hero, "Cramer-Rao bounds for biased estimators in image restoration," Proceedings of 36th IEEE Midwest Symposium on Circuits and Systems, Aug. 1993 (**Invited**).

423. M. Usman, AO Hero and W.L. Rogers, "Performance gain analysis for adding a vertex view to standard SPECT," Proceedings of 36th IEEE Midwest Symposium on Circuits and Systems, Aug. 1993 (**Invited**).

424. W.J. Williams, M.L. Brown, AO Hero, "Information invariance in time-frequency distributions," Proceeedings of SIAM Meeting, Philadelphia, July 1993 (**Invited**).

425. AO Hero, "Fundamental limitations for estimation of point process parameters," Special Session on Point Processes, Conference on Applied Probability in Engineering, Computer and Communication Sciences (INRIA/ORSA/TIMS/SMAI), Paris, June 1993 (**Invited**).

426. R. Delap and AO Hero, "A new method for adaptive wideband beamforming," Proceedings of the IEEE 1993 International Conference on Acoustics, Speech and Signal Processing, Vol. IV, pp. 348-351, Minneapolis, MN, April 1993.

427. J.A. Fessler and AO Hero, "Complete-data spaces and generalized EM algorithms," Proceedings of the IEEE 1993 International Conference on Acoustics, Speech and Signal Processing, Vol. IV, pp. 1-4, Minneapolis, MN, April 1993.

428. AO Hero, Y. Zhang and W.L. Rogers, "Consistency set estimation for PET image reconstruction," Proceedings of the 1993 International Conference on Information Science and Systems, pp. 605-610, Johns Hopkins, March 1993 (**Invited**).

429. AO Hero and J.A. Fessler, "Recursive CR-type bounds and the EM algorithm - applications to ECT image reconstruction," Special Session on Model-Based Imaging, IEEE International Symposium on Information Theory, San Antonio, TX, Jan. 1993 (**Invited**).

430. AO Hero, "On the convergence of the EM algorithm," IEEE Int'l. Symposium on Information Theory, San Antonio, TX, Jan. 1993.

431. AO Hero, I"A Cramer-Rao type lower bound for estimators satisfying a bias constraint," EEE Int'l Symposium on Information Theory, San Antonio, TX, Jan. 1993.

432. N. Petrick, AO Hero, N.H. Clinthorne, W.L. Rogers, J.M. Slosar, "Least squares arrival time estimators for single and piled up scintillation pulses," Proceedings of the IEEE 1992 Nuclear Science Symposium, Vol. 1, pp. 16-18, Orlando FA, Oct. 1992.

433. AO Hero, J.A. Fessler, W.L. Rogers, "A fast recursive algorithm for computing CR-type bounds for image reconstruction problems," Proceedings of the IEEE 1992 Nuclear Science Symposium, Vol. 2, pp. 1188-1190, Orlando FA, Oct. 1992.

434. Y. Zhang, AO Hero, W.L. Rogers, "A bounded error estimation approach to PET image reconstruction," Proceedings of the IEEE 1992 Nuclear Science Symposium, Vol. 2, pp. 966-968, Orlando FA, Oct. 1992.

435. AO Hero, "Optimal estimation of intensity parameters for filtered Poisson processes," 1992 IEEE Information Theory Workshop, Salvadore, Brazil, June 1992 (**Invited**).

436. B. Bayg´un and AO Hero, "Further Results on tradeoffs between detection and estimation," Proceedings of the IEEE 1992 International Conference on Acoustics, Speech, and Signal Processing, Vol. III, pp. 461-465, San Francisco, CA, March 1992.

437. R. Delap and AO Hero, "An improved method for adaptive beamsumming," Proceedings of the IEEE 1992 International Conference on Acoustics, Speech, and Signal Processing, Vol. II, pp. 453-456, San Francisco, CA, March 1992.

438. N. Antoniadis and AO Hero, "Timing estimation for Poisson-Gaussian processes via the EM algorithm," Proceedings of the IEEE 1992 International Conference on Acoustics, Speech, and Signal Processing, Vol. V, pp. 289-293, San Francisco, CA, March 1992.

439. AO Hero, "The influence of the choice of complete data on convergence of E-M type algorithms," Proceedings of the 1992 IEEE Workshop on Statistical Signal and Array Processing, Victoria, pp. 74-77, Victoria BC, Oct. 1992 (**Invited**).

440. P. Chiao, W. L. Rogers, AO Hero, and N.H. Clinthorne, "Maximum likelihood estimators for static and dynamic studies using emission tomography with auxiliary boundary information," Proceedings of the 1991 Medical Imaging Conference, Santa Fe, NM, Nov. 1991.

441. AO Hero, "Theoretical limits for optical position estimation using imaging arrays," Proceedings of the 13th Colloquium on Signal and Image Processing (GRETSI), Vol. 2, pp. 793-796, Juan-les-Plus, France, Sept. 1991.

442. W.J. Williams, M.L. Brown, AO Hero, "Uncertainty, information and time frequency distributions," SPIE Advanced Architectures and Algorithms for Signal processing, vol. 1566, no. 12, pp. 144-156, July 1991 (**Invited**).

443. P. Chiao, W. L. Rogers, AO Hero, N.H. Clinthorne, "Maximum likelihood estimators for static and dynamic studies using emission tomography with auxiliary boundary information," Society of Nuclear Medicine, 38th Annual Meeting, Cincinnati, OH, June 1991.

444. P. Chao, W.L. Rogers, AO Hero, J.A. Fessler, N.H. Clinthorne and G.D. Hutchins, "Effects of side information on myocardial block flow estimation and optimal SPECT collimator resolution," Society of Nuclear Medicine, 38th Annual Meeting, Cincinnati, OH, June 1991.

445. AO Hero, "Intrinsic performance gains using side information," Midwest Workshop on Iterative Image Reconstruction, the University of Chicago, May 1991 (**Invited**).

446. AO Hero, "Recovering photon intensity information for continuous photo-detector measurements," Proceedings of the 1991 Conference on Information Science and Systems, pp. 643-648, Baltimore, MD, March 1991 (**Invited**).

447. R. Kakarala and AO Hero, "A Cramer-Rao bound for edge localization," Proceedings of the IEEE 1991 International Conference on Acoustics, Speech, and Signal Processing, Vol. 4, pp. 2545-2548, Toronto, May 1991.

448. B. Baygʹun and AO Hero, "Tradeoffs between detection and estimation for multiple signals," Proceedings of the IEEE 1991 International Conference on Acoustics, Speech, and Signal Processing, Vol. 2, pp. 1317-1320, Toronto, May 1991.

449. J.D. Gorman and AO Hero, "On the application of Cramer-Rao type lower bounds for constrained estimation," Proceedings of the IEEE 1991 International Conference on Acoustics, Speech, and Signal Processing, Toronto, Vol. 2, pp. 1333-1336, May 1991.

450. L. Shao, AO Hero, N.H. Clinthorne, and W.L. Rogers, "Information theoretic performance approximations for maximum likelihood object classification using projections data," Society of Nuclear Medicine, 37th Annual Meeting, Washington, DC, June 1990. Abstract in J. Nuc. Medicine, 31(5):797, 1990.

451. AO Hero, "Optimal simultaneous estimation and detection of unknown spectral components," Special session on Nonparametric Spectrum Estimation, organized by D. Thomson, Meeting of the Union de Radio Science Internationale (URSI), sponsored by the Assembly of Mathematical and Physical Sciences, National Research Council, Boulder, CO, Jan. 1990 (**Invited**).

452. N.H. Clinthorne, AO Hero, N.A. Petrick and W.L. Rogers, "Lower bounds on scintillation detector timing performance," Proceedings of Symposium on Radiation Measurement, Ann Arbor, MI, June 1990.

453. N.A. Petrick, N.H. Clinthorne, W.L. Rogers and AO Hero, "First photo-electron timing error evaluation of a new scintillation detector model," Proceedings of the IEEE 1990 Nuclear Science Symposium.

454. AO Hero and J.K. Kim, "Simultaneous signal detection and classification under a false alarm constraint," Proceedings of the IEEE 1990 International Conference on Acoustics, Speech, and Signal Processing, pp. 2759-2762, Albuquerque, NM, April 1990.

455. B. Baygʹun and AO Hero, "An order selection criterion via optimal joint estimation/detection theory," Proceedings of the Fifth IEEE ASSP Workshop on Spectrum Estimation and Modeling, pp. 541-544, Rochester, NY, Oct. 1990 (**Invited**).

456. L. Shao and AO Hero, "Information optimization of projective tomographic imaging systems," Proceedings of the IEEE 1989 International Conference on Acoustics, Speech, and Signal Processing, pp. 1464-1467, Glasgow, UK, May 1989.

457. J.K. Kim and AO Hero, "Error intensity measures for multi-parameter tracking and passive bearing estimation," Proceedings of the IEEE 1989 International Conference on Acoustics, Speech, and Signal Processing, pp. 2641-2644, Glasgow, UK, May 1989.

458. AO Hero, "Optical detection," Bangor Communications Symposium, organized by J. O'Reilly, University of Wales, Bangor, UK, May 1989 (**Invited**).

459. AO Hero, "Information theoretic criteria for emission computed tomography," Special session on Inverse Problems, organized by L. Scharf, Meeting of the Union de Radio Science Internationale (URSI), sponsored by the Assembly of Mathematical and Physical Sciences, National Research Council, Boulder, CO, Jan. 1989 (**Invited**).

460. J. Gorman and AO Hero, "Lower bounds on parametric estimators with constraints," Proceedings of the Fourth ASSP Workshop on Spectrum Estimation and Modeling, pp. 223-228, Minneapolis, MN, Aug. 1988 (**Invited**).

461. AO Hero, "A rate distortion lower bound on phase errors for optical receivers," Proceedings of Twentieth Conference on Information and Systems Science, pp. 140-145, Princeton, NJ, March 1988.

462. AO Hero, "Time delay estimation for Poisson derived processes," Proceedings of the IEEE 1988 International Conference on Acoustics, Speech, and Signal Processing, pp. 2614-2617, New York, April 1988.

463. AO Hero, "Applications of error intensity measures to bearing estimation," Proceedings of the IEEE 1987 International Conference on Acoustics, Speech, and Signal Processing, pp. 443-446, Dallas, TX, April 1987.

464. L.Shao, AO Hero, W.L. Rogers, and N.H. Clinthorne, "Mutual Information - A new criterion for aperture design in SPECT," Society of Nuclear Medicine, 35th Annual Meeting, San Francisco, June 1988.

465. N.H. Clinthorne, W.L. Rogers, AO Hero, G.D. Hutchins, and K.F. Koral, "Improved coincidence timing through the application of estimation theory," Society of Nuclear Medicine, 34th Annual Meeting, Toronto, June, 1987. Abstract appeared in J. Nuc. Medicine, 28(4):695, 1987.

466. AO Hero and S.C. Schwartz, "A level crossing approach to modeling large error in time delay estimation," Special Session on Underwater Acoustics, organized by C. Baker, IEEE International Symposium on Information Theory, Brighton, UK, June 1985 (**Invited**).

467. AO Hero and J.K. Kim, "Sequential detection and coarse acquisition of time delay in passive arrays," Proceedings of the Twentieth Conference on Information and Systems Science, pp. 361-367, Princeton, NJ, March, 1985.

468. AO Hero and S.C. Schwartz, "Sequential detection and coarse acquisition of time delay in passive arrays," 1985 Proceedings of the IASTED Conference on Applied Signal Processing, pp. 267-270, Paris, France, June 1985.

469. AO Hero and S.C. Schwartz, "Large error performance of cross-correlation type estimators of time delay," Proceedings of the Twenty-Second Annual Allerton Conference on Communication, Control and Computing, pp. 344-353, Monticello, IL, Oct. 1985.

470. AO Hero and S.C. Schwartz, "Alternatives to the generalized cross-correlator for time delay estimation," Proceedings of the IEEE 1984 International Conference on Acoustics, Speech and Signal Processing, pp. 15.4.1-15.4.4, San Diego, CA, April 1984.

471. AO Hero and S.C. Schwartz, "On the asymptotic form of level crossing probabilities," IEEE International Symposium on Information Theory, St. Jovite, Canada, Sept. 1983.

472. AO Hero and S.C. Schwartz, "A new generalized cross-correlator," Proceedings of the Seventeenth Annual Conference on Information Science and Systems, pp. 808-818, Baltimore, MD, March 1983.

3.1.4 Book Chapters

1. B. Oselio, S. Liu, AO Hero, "Multilayer social networks," Ch. 25 in Cooperative and Graph Signal Processing, Eds Elsevier 2018.

2. Y. Yilmaz, G.V. Moustakides, X. Wang and AO Hero, "Event based statistical signal processing," in Event-Based Control and Signal Processing, Ed. M. Miskowicz, CRC/Taylor Francis, to appear 2015.

3. AO Hero and B. Rajaratnam, "Large scale correlation mining for biomolecular network discovery," in Big Data Over Networks, Eds. S. Cui, AO Hero, T. Luo, J. Moura, Cambridge University Press, 2015. Available as Stanford University Dept of Statistics Technical Report 2015-2.

4. AO Hero, "Sparsity regularized image reconstruction," in Review of Progress in Quantitative Nondestructive Evaluation, Vol. 34, edited by Dale E. Chimenti and L. J. Bond, published by American Institute of Physics, Melville, NY, 2015. This paper supports Keynote address given at QNDE 2014 in Boise ID.

5. H. Firouzi, D. Wei, and AO Hero, "Spectral Correlation Hub Screening of Multivariate Time Series," Excursions in Harmonic Anlaysis, Eds. R. Balan, M. Begue, J. J. Benedetto, W. Czaja and K. Okoudjou, Springer 2014.

6. Dobigeon, N., S. Moussaoui, M. Coulon, J-Y. Tourneret, and AO Hero. "MCMC Algorithms for Supervised and Unsupervised Linear Unmixing of Hyperspectral Images." EAS Publications Series 59, pp. 381-401. Cambridge University Press, 2013.

7. T.-Y. Liu, L. Trinchera, A. Tenenhaus, D. Wei and AO Hero III, "Globally sparse PLS regression," in New perspectives in Partial Least Squares and Related Methods, Springer Series in Mathematics and Statistics, H. Abdi, W. Chin, V. Esposito Vinzi, G. Russolillo and L. Trinchera, Eds., Springer-Verlag, 2013

8. AO Hero, C. Kreucher and D. Blatt, "Information theoretic approaches to sensor management," Ch. 3 in Foundations and Applications of Sensor Management, AO Hero, D. Casteñón, D. Cochran and K. Kastella (Eds), Springer, 2007

9. R. Rangarajan, R. Raich, and AO Hero, "Sparsity penalized MDS for blind tracking in sensor networks," in Networked Sensing, Information and Control, Ed. V. Saligrama, Springer, 2007.

10. AO Hero, "Geometric entropy minimization (GEM) for anomaly detection and localization," in Advances in Neural Information Processing Systems (NIPS) 2007.

11. D. Zhu, M. Rabbat, AO Hero, R. Nowak, M. Figuieredo, "De Novo signaling pathway reconstruction from multiple data sources," in New research on signal transduction, Ed. F. Columbus , Nova Publishing, 2006.

12. N. Patwari, AO Hero and J. Costa, "Learning Sensor Location from Signal Strength and Connectivity," in "Secure Localization and Time Synchronization for Wireless Sensor and Ad Hoc Networks," Eds. Radha Poovendran, Cliff Wang, and Sumit Roy, Advances in Information Security series, Vol. 30, Springer, Dec. 2006, ISBN 978-0-387-32721-1. .

13. D. Blatt and AO Hero, "From weighted classification to policy search," Advances in Neural Information Processing Systems (NIPS), vol 18, pp. 139-146, 2006.

14. J. Costa and AO Hero, "Learning intrinsic dimension and entropy of shapes," in Statistics and analysis of shapes, Eds. H. Krim and T. Yezzi, Birkhauser, pp. 231-252, 2006.

15. H. Neemwuchwala and AO Hero, "Entropic Graphs for Registration," in Multi-Sensor Image Fusion and its Applications, Eds. R. S. Blum and Z. Liu, Marcel Dekker, Inc., pp. 185-235, 2005.

16. H. Park, P.H Bland, AO Hero III, and C.R. Meyer, "Least Biased Target Selection in Probabilistic Atlas Construction," Lecture Notes in Computer Science, Vol 3750 (MICCAI-05 Proceedings - Palm Springs), Springer-Verlag, pp. 419-496, 2005.

17. E. Oubel, C. Tabon-Gomez, AO Hero and A.F. Frangi, "Myocardial Motion Estimation in Tagged MR Sequences by Using alpha-MI-Based Non Rigid Registration," Lecture Notes in Computer Science, Vol 3750 (MICCAI-05 Proceedings - Palm Springs), Springer-Verlag, pp. 271-278, 2005.

18. O. Michel, AO Hero and A. Ferrari, "Signaux aléatoires: modelisation, estimation, détection," (English title: Random signals: modeling, estimation, detection"), Ed. M. Gugliemi, Hermes, 2004.

19. Yu J, Mears AJ, Yoshida S, Farjo R, Carter TA, Ghosh D, Hero A, Barlow C, Swaroop A. "From disease genes to cellular pathways: A progress report," In "Retinal dystrophies: functional genomics to gene therapy." Wiley, Chichester (Novartis Foundation Symposium 255) pp 147-160, 2004.

20. J. Costa, AO Hero and C. Vignat, "On solutions to multivariate maximum alpha-entropy Problems," in Energy Minimization Methods in Computer Vision and Pattern Recognition (EMM-CVPR), Eds. M. Figueiredo, R. Rangagaran, J. Zerubia, Springer-Verlag, 2003.

21. D. Blatt and AO Hero, "Asymptotic distribution of log-likelihood maximization based algorithms and applications," in Energy Minimization Methods in Computer Vision and Pattern Recognition (EMM-CVPR), Eds. M. Figueiredo, R. Rangagaran, J. Zerubia, Springer-Verlag, 2003

22. AO Hero, Donald L. Snyder "Parameter Estimation for Multi-dimensional Filtered Poisson Processes," Festschrift – J. O'Sullivan (Ed). Springer-Verlag, To appear 2005.

23. AO Hero, "Signal Detection and Classification," The Digital Signal Processing Handbook, Madisetti and Williams (Eds.), CRC Press, pp. 13.1-13.14, 1998. Revised edition with updated chapter in 2009.

24. AO Hero, "Telecommunications Media," Encyclopedia Britannica, pp. 493-500, 1997.

25. AO Hero and R.A. Delap, "Task specific criteria for adaptive beamforming with slow fading signals," Advances in Spectrum Analysis and Array Processing, vol. III, S. Haykin, Ed., pp. 352-401, 1995.

26. AO Hero and S.C. Schwartz, "A new generalized cross-correlator," in Coherence and Time Delay Estimation: An Applied Tutorial for Research, Development, Test, and Evaluation Engineers, G.C. Carter, Ed., IEEE Press, pp. 105-112, 1993.

27. AO Hero and S.C. Schwartz, "Level crossing representations, Poisson asymptotics and applications to passive arrays," Stochastic Processes in Underwater Acoustics, C. Baker, Ed., pp. 95-121, Springer-Verlag, New York, 1986.

3.1.5 Book Reviews:

1. "Radar Data Processing: Vol. 1 - A. Farina and F.A. Studer," IEEE Trans. Acoustics, Speech and Signal Processing, Vol. ASSP-34, pp. 1350-1352, Feb. 1987.

3.1.6 Technical Reports:

1. D Tarzanagh, L Balzano, AO Hero, "Fair structure learning in heterogeneous graphical models," arxiv:2112.05128, 9 Dec 2021.

2. Z Sun, M Bobra, X Wang, Y Wang, H Sun, T Gombosi, Y Chen and AO. Hero, "Predicting Solar Flares using CNN and LSTM on Two Solar Cycles of Active Region Data," Earth and Space Science Open Archive (ESSOA), Oct 29, 2021.

3. M Baranwal, RL Clark, J Thompson, Z Sun, A Hero, O S Venturelli, "Deep Learning Enables Design of Multifunctional Synthetic Human Gut Microbiome Dynamics," bioRxiv, Sept 29, 2021.

4. R Wang, T Chen, S Lindley, C Stansbury, A Rehemtulla, I Rajapakse, A Hero, "RAILS: A robust immune- inspired learning system," arxiv:2012.10485, June 27, 2021.

5. R Wang, T Chen, P Yao, S Liu, I Rajapakse, A Hero, "ASK: Adversarial Soft k-nearest neighbor attack and defense," arxiiv:2106.14300, June 27, 2021.

6. L. Zhou and A. Hero, "Resolution Limits of Noisy 20 Questions Search for Multiple Targets," arxiv:2101.06843 Jan 18, 2021.

7. A. Hero, B. Rajaratnam and Y. Wei, "A Unified Framework for Correlation Mining in Ultra-High Dimension," arxiv:2101.04715. Jan 12. 2021.

8. J. Lin, Q. Qian, J. Murphy, A. Hsu, AO Hero, A.G.R. Thomas, K. Krushelnick, "Feature analysis in relativistic laser-plasma experiments utilizing machine learning methods," arxiv:2011.05866, Nov 2020.

9. N. Charalambides, M. Palanci, and AO Hero, "Approximate Weighted CR Coded Matrix Multiplication," arxiv:2011.09709 Nov 2020.

10. L. Zhou, Y. Wei and A. Hero, "Second-Order Asymptotically Optimal Universal Outlying Sequence Detection with Reject Option," arxiv:2009.03505, Sept 2019

11. M. Baranwal, A. Magner, J. Saldinger, E.S. Turali-Emre, S. Kozarekar, P. Elvati, J.S. VanEpps, N.A. Kotov, A. Violi, AO Hero, "Struct2Graph: A graph attention network for structure based predictions of protein-protein interactions," Bioarxiv Sept 2020.

12. Abram Magner, Mayank Baranwal, A.O. Hero, "Fundamental limitations of deep graph convolutional networks," arxiv:1910.12954 May 2020.

13. E. Sabeti, P.X.K. Song, AO. Hero, "Pattern-Based Analysis of Time Series: Estimation," arXiv:2005.00926, April 2020.

14. W. Dempsey, B. Oselio, AO Hero, "Hierarchical network models for structured exchangeable interaction processes," arxiv:1901.09982

15. L. Zhou and AO Hero, "Exponential Strong Converse for Successive Refinement with Causal Decoder Side Information," arxiv:1901.01356, Jan 2019

16. F. Harirchi, D. Kim, O. Khalil, S. Liu, P. Elvati, AO Hero, A. Violi, "A New Data-Driven Sparse-Learning Approach to Study Chemical Reaction Networks," arxiv:1712.06281, Dec 2018.

17. S. Sekeh, B. Oselio and AO Hero, "Learning to Bound the Multi-class Bayes Error," submitted to IEEE Trans. on Signal Processing. Nov 2018. (.html) .

18. H.-W. Chung, J.-O. Lee, D. Kim and AO Hero, "Parity Crowdsourcing for Cooperative Labeling," submitted to IEEE Trans on Information Theory, Sept. 2018.

19. I. Yun, C. Jung, X. Wang, AO Hero, J. Kim, "Part-Level Convolutional Neural Networks for Pedestrian Detection Using Saliency and Boundary Box Alignment," arXiv:1810.00689. Oct 1 2018.

20. H. Tiomoko Ali, S. Liu, Y. Yilmaz, AO Hero, R. Couillet, I. Rajapakse, "Latent heterogeneous multilayer community detection," arXiv.1806.07963 2018. (.html) .

21. M.S. Barr, B.T. Koziara, M. Flood, AO Hero, H.V. Jagadish, "Big Data in Finance: Highlights from the Big Data in Finance Conference Hosted at the University of Michigan in 2016," published Mar 2018.

22. S. Liu, P.Y. Chen, AO Hero and I. Rajapakse, "Dynamic Network Analysis of the 4D Nucleome," bioarxiv

23. Sijia Liu, Haiming Chen, Scott Ronquist, Laura Seaman, Nicholas Ceglia, Walter Meixner, Lindsey A. Muir, Pin-Yu Chen, Gerald Higgins, Pierre Baldi, Steve Smale, AO Hero, Indika Rajapakse, "Genome Architecture Leads a Bifurcation in Cell Identity," Bioarxiv.1515555

24. K. Greenewald, S. Zhou, AO Hero, "The Tensor Graphical Lasso (TeraLasso)," arxiv1705.03983

25. T. Banerjee and AO Hero, "Quickest Hub Discovery in Correlation Graphs," arxiv:1702.01225.This also appeared in Asilomar Conference on Signals, Systems and Computers, 2016.

26. K. Todros and AO Hero, "On measure transformed canonical correlation analysis," arXiv:1111.6308, Nov. 2011

27. K.-J. Hsiao, S. Xu, and AO Hero, "Multi-criteria anomaly detection using Pareto depth analysis," arXiv:1110.3741, Oct. 2011

28. AO Hero and B. Rajaratnam, "Hub discovery in partial correlation graphical models," arXiv:1109.6846, Sept. 2011

29. K. S. Xu, M. Kliger and AO Hero, "Adaptive Evolutionary Clustering," arXiv:1104.1990, April. 2011

30. AO Hero and B. Rajaratnam, "Large Scale Correlation Screening," arXiv:1102.1204, Feb. 2011

31. Y. Chen and AO Hero, "Recursive $\ell_{1,\infty}$ Group lasso ," arXiv:1101.5734, Jan 2011.

32. P. Harrington, A. Zaas, C. W. Woods, G. S. Ginsberg, L. Carin, and AO Hero, "Robust logistic regression with bounded data uncertainties," Technical report. Sept. 2010

33. P. Harrington and AO Hero, "Spatio-temporal graphical model selection," Apr 14 2010. arXiv:1012.4188v1

34. K. Sricharan, R. Raich, AO Hero, "Empirical estimation of entropy functionals with confidence," CSPL Technical Report 398, Dept. of EECS, University of Michigan, Ann Arbor. Dec 19 2010. Available on arXiv (arXiv:1012.4188v1)

35. Y. Chen, Y. Gu and AO Hero, "Regularized least-mean-square algorithms," arXiv:1012.5066, Dec 22, 2010

36. P. Harrington and AO Hero, "Percolation Thresholds of Updated Posteriors for Tracking Causal Markov Processes in Complex Networks," arXiv:0905.2236v1, May 14 2009.

37. D. Justice and AO Hero, "Online Methods for Network Endpoint Localization," CSPL Technical Report 390, Dec 30 2008.

38. N. Dobigeon, AO Hero and J.-Y. Tourneret, 'Hierarchical Bayesian sparse image reconstruction with application to MRFM,' arXiv Sept. 2008.

39. A. Wiesel and AO Hero, 'Decomposable Principal Components Analysis,' arXiv, Aug, 2008.

40. John A. Sidles, Joseph L. Garbini, Lee E. Harrell, AO Hero, Jonathan P. Jacky, Joseph R. Malcomb, Anthony G. Norman, Austin M. Williamson, "Practical recipes for the model order reduction, dynamical simulation, and compressive sampling of large-scale open quantum systems," arXiv, May 2008

41. R. Raich, J. Costa, S. Damelin and AO Hero, "Classification constrained dimensionality reduction," ArXiv, Feb 20, 2008.

42. A. Wiesel, M.Kliger, AO Hero, "A greedy approach to sparse canonical correlation analysis," arXiv:0801.2748v1 [stat.CO], 17 Jan. 2008.

43. A. Rao, A.O Hero, D.J. States, J. D. Engel, "Understanding transcriptional regulation using de-Nove sequence discovery, network inference and interactome data," arXiv Oct 9 2007.

44. C. Hory and AO Hero, "Sequential Probability Ratio Test for the detection of a single electron spin in the OSCAR setup," arXiv mansucript quant-ph/0402181, Feb. 2004.

45. M. Ting, AO Hero, D. Rugar, C.-Y. Yip, and J. Fessler, "Electron spin detection in the frequency domain under the interrupted Oscillating Cantilever-driven Adiabatic Reversal (iOSCAR) protocol," a modified version appeared in IEEE Trans. on Signal Processing June 2006. Available as arXiv mansucript quant-ph/0307042, (arXiv), Dec. 2003.

46. AO Hero and T.L. Marzetta, "On computational cut-off rate for space-time coding," Bell Laboratories Technical Memo, Lucent Technologies, April 2000 (http://mars.bell-labs.com/cm/ms/what/mars/index.html).

47. S. Chretien and AO Hero, "Kullback Proximal Algorithms for Maximum Likelihood Estimation," RR-3756, INRIA Rhone-Alpes, Grenoble, France, Aug. 1999 (http://www.inria.fr/RRRT/publications-fra.html).

48. AO Hero, J. O'Neill and W.J. Williams, "Moments and moment matrices for invariant classification of noise contaminated spatial patterns," CSPL Technical Report 307, Mar. 1997.

49. AO Hero and C. Guillouet, "Maximal Invariant Theory Applied to Robust Detection of SAR/IR Targets," CSPL Technical Report 306, Jan. 1997

50. AO Hero, M. Usman, Anne Sauve, and J. A. Fessler, "Recursive algorithms for computing the Cramer-Rao bound," CSPL Technical Report 305, Nov.1996.

51. J.A. Fessler and AO Hero, "Space-alternating generalized EM algorithms for penelized maximum-likelihood image reconstruction," Tech. Report 286, Communications and Signal Processing Laboratory (CSPL), Dept. EECS, University of Michigan, Jan. 1994.

52. AO Hero and J.A. Fessler, "Asymptotic convergence properties of EM-type algorithms," Tech. Report 282, Communications and Signal Processing Laboratory (CSPL), Dept. EECS, University of Michigan, April 1993.

53. AO Hero, "A Cramer-Rao type lower bound for essentially unbiased parameter estimation," Technical Report 890, MIT Lincoln Laboratory, 1992.

54. AO Hero and J.K. Kim, "Simultaneous signal detection and classification under a false alarm constraint," Tech. Report 270, Communications and Signal Processing Laboratory (CSPL), Dept. EECS, University of Michigan, Oct. 1989.

55. J. Gorman and AO Hero, "Lower bounds on parametric estimation with constraints," Tech. Report 269, Communications and Signal Processing Laboratory (CSPL), Dept. of EECS, University of Michigan, Aug. 1989.

56. AO Hero, "Timing estimation for filtered Poisson processes in additive Gaussian noise," Tech. Report 255, Communications and Signal Processing Laboratory (CSPL), Dept. EECS, University of Michigan, March, 1988.

57. L. Shao and AO Hero, "Information theoretic criteria for SPECT image reconstruction and aperture optimization," Tech. Report 261, Communications and Signal Processing Laboratory (CSPL), Dept. EECS, University of Michigan, Oct. 1988.

58. AO Hero, "Topics in time delay estimation," Tech. Report 16, Information Sciences and Systems Laboratory, Princeton University, Feb. 1985.

3.2 Patents and disclosures

Patents

1. Sardar Ansari, Kevin Ward, Hongyi Yang, and Alfred O. Hero, "A Practical Approach to Disease Risk Prediction: Focus on High-Risk Patients Via Highest-K Loss," U.S. Provisional Application No. 63/605,833 - UM Ref. 2024-070-01, July 1, 2024.

2. AO Hero, E. Sabeti, P Song, "Systems and methods for enhancing anomaly detection using a pattern dictionary", US Provisional Patent Application number 30275/56897P, disclosed Feb 13 2021.

3. I. Rajapakse, AO Hero, A. Rehmtulla, R. Wang, S. Lindley, "Adversarial Immune-Inspired Learning System," US Provisional Patent Application 63/123,684, filed Dec. 10 2020.

4. G. Ginsberg, J. Lucas, C. Woods, L. Carin, A. Zaas, and AO Hero, "Methods of identifying infectious disease and assays for identifying infectious disease," US Patent 8,821,876. Filed May 22 2010. Issued Sept 2 2014.

5. AO Hero, K. Carter, R. Raich, and W. Finn, "Method and apparatus for clustering and visualization of multicolor cytometry data," US Patent 7,853,432. Filed Oct 7 2007. Issued Dec 14 2010.

6. AO Hero, H. Neemuchwala, P. Carson, "Method for determining alignment of images in high dimensional feature space," US Patent 7,653,264. Filed Mar 4 2005. Issued January 26 2010.

7. W.J. Williams, E.J. Zalubas, J.C. O'Neill, R.M. Nickel, and AO Hero, "Method and system for extracting features in a pattern recognition system," US Patent 6,178,261. Filed 5 Aug 1997. Issued Jan 23 2001.

Patent and Software Disclosures

1. A. Hero, E. Sabeti and PX Song, "Method and apparatus for anomaly detection using a pattern tree," disclosed to Univ of Michigan OTT on 03/13/2021. Reference: UM OTT # 2021-339.

2. A. Hero, GS. Ginsburg, C. Woods, Y. Zhai, PX Song, X. She, R. Henao, C. Chiu "Adaptive Event Segmentation and Feature Extraction for Monitoring Health Outcomes," disclosed to Univ. of Michigan Technology Management Office on 9/17/2020. UM OTT # 2021-110.

3. A. Hero, GS. Ginsburg, C. Woods, Y. Zhai, R. Henao, M. Doraiswamy "A Procedure for Scoring Cognitive Performance Variability for Predictive Health," disclosed to Univ. of Michigan Technology Management Office on 9/17/2020. UM OTT # 2021-111

4. "Automated Analysis of Multi-Lead ECG Data," F. Bogun, AO Hero, T.Z. Liu and C. Scott, disclosed to Univ. of Michigan Technology Management Office 12/2012. UM Ref. 4732.

5. AO Hero, Y. Huang, G. Ginsberg, C. Woods, A. Zaas, L. Carin, "Temporal dynamics of host molecular responses differentiate symptomatic and asymptomatic influenza A infection," disclosed to Univ of Michigan Technology Management Office 11/2009. UM Ref. 4605.

6. G. Ginsberg, A. Zaas, L. Carin, C. Woods, AO Hero, "Clinical 'challenge' methods to develop predictors for future symptomatic illness," disclosed to Duke University 03/09. Duke Ref 3229.

7. A. Zaas, L. Carin, AO Hero, M. Chen, C. Woods, G. Ginsberg, "Peripheral blood gene expression signatures predict symptomatic respiratory infection," disclosed to Duke University 03/2009. Duke Ref 3230.

8. N. Patwari, J. Costa, AO Hero. "Distributed method for mapping sensor data and location from high dimensional data and pairwise measurement," software disclosed to Univ of Michigan Technology Management Office 02/2006.

9. N. Patwari, AO Hero, A. Pocholsky, P. Felsen. "Network data visualization tool," software disclosed to Univ of Michigan Technology Management Office 01/2005.

10. AO Hero and G. Fleury, "Pareto Front Gene Filtering (PFGF) tool," software disclosed to Univ of Michigan Technology Management Office, 08/2002.

3.3 Research Grants

Current Research Grants

1. MIDAS Schmidt Futures Fellowship Program, (9/1/2024-8/30/2026). A Hero is co-mentor of Jamila Taaqi, a Schmidt AI in Science Fellow, for her research in finding low SNR transients for detecting exoplanets from astornomical measurements.

2. "Theoretical foundations of lifelong continual learning in federated networks," (10/1/2023-9/30/2026) Army Research Offic. PI Sijia Liu. Michigan State University.

3. "Modeling microbial community responses to perturbations," (9/1/2023-8/30/2025) Army Research Offic. PI Jo Handelsman. University of Wisconsin.

4. "Prediction of Heart Failure Onset using Multimodal Data Analysis, Deep Learning and Commercial Wearables," National Institutes of Health (NIH) (9/1/2021-8/31/2026), PI Sardar Ansari.

Past Research Grants:

1. "CIF: Medium: Foundations of Robust Deep Learning via Data Geometry and Dyadic Structure," (10/1/2022-9/30/2026) National Science Foundation. Role of PI transfered to Qing Qu due to A. Hero's IPA assignment to NSF in Sept 2022.

2. "Synthesis, Exploitation, Analysis, and Belief for Autonomous Sensor Systems (SEABASS)," (5/7/2019-5/1/2024) Dept. of the Air Force. PI A. Hero.

3. "Consortium for Enabling Technologies and Innovation: multimodality data integration for verification and safeguards," (6/01/2019 -5/31/2025), Nuclear Non-proliferation Security Adminstration (NNSA), Dept of Energy. PI Anna Erikson (Georgia Tech).

4. "Multiscale biofilm data-model integration and experimental design," (7/1/2019-6/31/2024), US Army Research Office MURI. PI James Boedicker (Univ of Southern California).

5. "Adaptive exploitation of non-commutative multimodal information structure," (8/17/2015-8/16/2022) ARO MURI grant W911NF-15-1-0479. PI AO Hero.

6. "Solar Storms and Terrestrial Impacts Center (SOLSTICE)," (2/25/2020-2/24/2022) NASA. Project PI: T Gombosi.

7. "Robust AI Guided by the Immune System," (1/6/2020-8/31/2021) DARPA. Project PI: I Rajapakse.

8. "Epileptic biomarkers and big data: identifying brain regions to resect in patients with refractory epilepsy," (9/30/2015-7/31/2020) National Institutes of Health (NIH). PI: S. Gliske.

9. "PREdicting contagion using Systems and Genomic analysis (PRESAGE)," (5/31/2017-9/14/2020) DARPA. PI C. Woods (Duke University)

10. "Covariance estimation methods using regularization techniques developed for multidimensional processes," (5/1/2015-5/31/2020) Dept. of the Air Force. PI A. Hero.

11. "New Theoretical and Experimental Methods for Predicting Fundamental Mechanisms of Complex Chemical Processes," (2/17/2017-12/31/2019) Dept. of the Army. PI: A Violi.

12. "CIF: Student Travel Support for the 2019 IEEE International Symposium on Information Theory," (1/1/2019-12/31/2019) National Science Foundation (NSF). PI: A. Hero.

13. "Development and Application of Mathematical Methods for Tracking Biochronicity and Baseline Variation," (12/29/2016-3/28/2019) DARPA. PI C. Woods (Duke University).

14. "DiDi: DeepRL for decentralized decision-making in ride sharing," (9/1/2017-8/31/2018) Didi Chuxing, Inc, Beijing China. Subcontract to Satinder Singh Bajeva (EECS) under the master agreement between UM Michigan Institute of Data Science and Didi Chuxing. Project PI: AO Hero.

15. "DiDi: Improving driver performance through team competition," (9/1/2017-8/31/2018) Didi Chuxing, Inc, Beijing China. Subcontract to Yan Chen (School of Information) under the master agreement between UM Michigan Institute of Data Science and Didi Chuxing. Project PI: AO Hero.

16. "DiDi: First-last mile cponnection for ride hailing services and bikeshare: a multi-modality approach," (9/1/2017-8/31/2018) Didi Chuxing, Inc, Beijing China. Subcontract to Robert Hampshire (Univ pof Michigan Transportation Institute) under the master agreement between UM Michigan Institute of Data Science and Didi Chuxing. Project PI: AO Hero.

17. "DiDi: Combining data analytics and field experiments: enhancing driver engagement using economics and gamification," (9/1/2017-8/31/2018) Didi Chuxing, Inc, Beijing China. Subcontract to Puneet Manchanda (Ross School of Business) under the master agreement between UM Michigan Institute of Data Science and Didi Chuxing. Project PI: AO Hero.

18. "DiDi: Real-time pptimization and pricing of ride-sharing services," (9/1/2017-8/31/2018) Didi Chuxing, Inc, Beijing China. Subcontract to Pascal van Hentenryck (Industrial and Operations Engineering) under the master agreement between UM Michigan Institute of Data Science and Didi Chuxing. Project PI: AO Hero.

19. "DiDi:Understanding labor supply in the ride-sourcing markets," (9/1/2017-8/31/2018) Didi Chuxing, Inc, Beijing China. Subcontract to Yafeng Yin (Civil and Environmental Engineering) under the master agreement between UM Michigan Institute of Data Science and Didi Chuxing. Project PI: AO Hero.

20. "DiDi: Research on behavioral interventions in transportation services," (9/1/2017-8/31/2018) Didi Chuxing, Inc, Beijing China. Subcontract to Jun Zhang (Psychology) under the master agreement between UM Michigan Institute of Data Science and Didi Chuxing. Project PI: AO Hero.

21. "Geometry of Information and Computation Workshop," (6/1/2017-12/31/2018) Dept of the Army. PI: A Hero.

22. "Reaction network reconstruction for modeling of dynamic pathways," (5/13/2015-5/12/2018) Dept of the Army. PI: A Violi.

23. "Utility-driven anomaly detection," (9/1/2015-) Parc Research. PI AO Hero.

24. "Measure transformed lower order multivariate analysis," (7/1/2015-6/31/2018) United States Israel Binational Science Foundation, Collaborative project between Ben Gurion University and the University of Michigan. PI Koby Todros.

25. "Covariance estimation methods using regularization techniques developed for multidimensional processes," (8/1/2015-7/31/2018) Dept. of Air Force under grant FA8650-15-D-1845. PI AO Hero.

26. "Tracking biochronicity for prediction of baseline variation," (6/1/2015-5/30/2016), Direct: Duke University (PI Geoff Ginsburg). Prime: Dept. of Defense (DARPA) grant W911NF-15-1-0161. PI AO Hero.

27. "Reaction network reconstruction for modeling of dynamic pathways," (5/1/2015-4/30/2018). Army Research Office under grant W911NF-15-1-0241. PI Angela Violi.

28. "Ontology-based Big Data Integration and Analysis of Biological Interaction Networks," (1/1/2015-31/12/2016). UM MCubed Diamond Program. Joint project with Meng Fan (Psychology) and Oliver He (Microbiology and Immunology). PI Oliver He.

29. "Consortium for Verification Technology," (09/01/14-08/31/19). Department of Energy. PI. Sara Pozzi. "This work was funded by the Consortium for Verification Technology under Department of Energy National Nuclear Security Administration award number DE-NA0002534"

30. "Social Informatics Program: Emergent spatio-temporal behavior in social networks," (08/23/12-07/22/16) Army Research Office (ARO). PI: AO Hero.

31. "Muri: Value-Centered Information Theory For Adaptive Learning, Inference, Tracking and Exploitation," (08/01/11-07/31/16) MURI - Army Research Office (ARO). PI: AO Hero.

32. "Communication and complexity constrained inference over graphs for Big Data," (9/1/2015-8/31/2018) Vienna Science and Technology Fund. Collaborative project between Vienna University of Technology, Technion, and the University of Michigan. PI Gerald Matz.

33. "Sample-starved large scale network analysis," (02/01/13-1/31/16) Air Force Office of Scientific Research (AFOSR). Collaboration with B. Rajaratnam (Stanford). Project PI: AO Hero.

34. "Characterisation de l'évolution temporelle des régions actives en vue de la prédiction d'éruptions solaires - PREDISOL," (English title: Characterisation of the temporal evolution of active regions for prediction of solar flares," (10/1/2013-12/31/2015) Project funded by BRAIN-be (Belgium) is a collaboration between Royal Observatory of Belgium and the University of Michigan. PI Véronique Delouille (Royal Observatory of Belgium).

35. "Performance-driven inference and provisioning in multiple platform ATR radar systems," (10/1/2012-12/31/2014) Air Force Research Laboratory (AFRL). Project PI: AO Hero.

36. "Distribution-Adaptive Prediction and Classification," (09/01/12-12/31/15) National Science Foundation (NSF). Project PI: C. Scott.

37. "University of Michigan Astro-Informatics Research Group," (01/01/12-12/31/12) University of Michigan MCubed Program. Project PI: C. Miller.

38. "Sparse representation of multimodality sensing databases for data mining and retrieval," Army Research Office (ARO). Project PI: AO Hero.

39. "Automatic three dimensional (3D) registration for enhanced cancer management," (04/09/2009-8/31/2014), National Institutes of Health, grant number. PI: C. Meyer.

40. "Data fusion for detection of anomalous structures," (06/01/12-12/30/13) Air Force Research Laboratory (AFRL). Project PI: AO Hero.

41. "Distributed active network sensing and estimation (DANSE)," (1/1/2008-12/31/2013), DIGI-TEO. PI: AO Hero.

42. "Clinico-molecular predictors of presymptomatic infectious disease," (06/01/09-05/31/11) DARPA phase II grant N66001-07-C-2024. Collaboration between Duke Univ, SRI and Univ of Michigan. Project PI: J. Ginsberg at Duke. UM co-PI AO Hero.

43. "Learning and Adapting to Spatio-Temporal Anomalies," (9/1/2008-8/31/2011), National Science Foundation. PI: C. Scott. co-PI: A.O Hero.

44. "Network Tomography for Structure Discovery," (6/4/2008-6/5/2009), Office of Naval Research N00014-08-1-1065. PI: AO Hero.

45. "ATR Center," Air Force Research Laboratory (9/01/07-8/31/12), subcontract to Signal Innovations Group (SIG) Inc. Project PI: L. Carin at SIG.UM PI: AO Hero.

46. "2012 Sensor Information Estimation and Exploitation Workshop," Army Research Office (ARO).

47. "Identification of effectors of hox protein mediated leukemogenesis," (02/01/2009-01/31/2010) CCMB. A collaborative effort to support PhD studies of Y. Huang. co-PI's J. Hess and AO Hero.

48. "Performance-Driven Multimodality Sensor Fusion," (06/01/2009-11/30/2011) Air Force Office of Scientific Research. PI: AO Hero. co-PI: R. Raich (Oregon State Univ).

49. "Integrated Fusion, Performance Prediction, and Sensor Management for Automatic Target Exploitation," AFOSR MURI (06/01/06-05/31/10). Collaboration between Ohio State Univ, MIT, Boston Univ, Florida State Univ, and Univ of Michigan, Air Force Office of Scientific Research FA9550-06-1-0324. MURI PI: R. Moses at Ohio State University. UM coPI: AO Hero.

50. "Application of Magnetic Resonance Force Microscopy to Single Nuclear Spin Detection," ARO-MURI (05/01/05-04/31/10). Collaboration with University of Washington (J. Sidles, J. Garbini), Cornell (J. Marohn), and IBM (D. Rugar). Army Research Office grant W911NF-05-1-0403. MURI P.I.: J. Sidles (Univ Washington). UM co-PI: AO Hero.

51. "Modular strategies for internetwork monitoring," National Science Foundation CCR-0325571 (9/1/03-8/31/08). This grant is a collaborative ITR grant with UM(Hero, Teneketzis, Lafortune, Michailides), Univ. Wisconsin (R. Nowak, P. Barford) and Boston Univ. (E. Kolaczyk, M. Crovella). Project PI: AO Hero.

52. "A Genomics-basec Integrative Approach to Discovery of Distant Transcriptional Enhancers," (04/01/08-03/30/09), CCMB. UM (Student-faculty partnership award with PhD student Arvind Rao, Profs. David States and Doug Engel of UM Medical School). Co-PIs D. Engel, AO Hero, D. States

53. "Clinico-molecular predictors of presymptomatic infectious disease," (06/01/07-05/31/08) DARPA Phase I grant N66001-07-C-2024. Collaboration between Duke Univ, SRI and Univ of Michigan. DARPA Project PI: J. Ginsberg at Duke. UM co-PI AO Hero.

54. "ARO Workshop on Research Directions in Information Processing," (05/01/07-04/31/08), Army Research Office. PI AO Hero.

55. "Utility-weighted sensor management for missile defense," Missile Defense Agency (10/01/07-05/31/08), subcontract to TechFinity, Inc. UM PI: AO Hero

56. "Multi-modality Image Registration," National Institutes of Health, P01, 05/01-05/06. P.I.: C. Meyer (UM Radiology).

57. "Sequential adaptive multimodality target detection and classification using physics-based models," ARO-MURI (06/01/05-05/31/07). P.I.: L. Carin (Duke).

58. "Active Sensing Workshop," National Science Foundation CCR0524865 (04/01/05-04/31/06). P.I.: AO Hero.

59. "Adaptive detection and classification with entropic measures," DARPA Integrated Sensors Program (Phase II) F012399 (04/01/05-4/31/06). PI: H. Schmitt (Raytheon).

60. "Signal Detection for single-spin magnetic force microscopy," sub-contract to IBM, under DARPA MOSAIC project award, $360,000, 06/02-12/04. P.I.: AO Hero.

61. "Radionucleides: radiation detection and quantification," National Institutes of Health RO1-CA32846. 6/1/02-5/31/05, $1,000,000. P.I.: N. Clinthorne.

62. "Sequential adaptive multimodality target detection and classification using physics-based models," DARPA-MURI, 07/01-05/05. P.I.: A. Yagle (UM).

63. "Application and analysis of minimal graphs for information and divergence estimation," Collaborative Linkage Grant, NATO, 8/1/00-7/31/01, Project Coordinator from NATO: O. Michel, Project Coordinator from Israel: Y. Francos, Project Coordinator from US: AO Hero.

64. "Techniques for calculating tumor dosimetry," National Institutes of Health RO1-CA87955-01, 6/1/00-5/30/04. P.I. K. Koral.

65. "Challenges in Pattern Recognition," National Science Foundation CCR 0223741. 03/02-09/02. P.I.: AO Hero.

66. "Low-energy electronics design for mobile platforms," Army Research Office DAAH04-96-1-0337. 9/1/96-8/31/01, P.I. W. Stark.

67. "Radionucleides: radiation detection and quantification," National Institutes of Health RO1-CA32846. 3/1/94-2/28/02. P.I.: W.L. Rogers.

68. "Reduced Signature Automated Target Recognition," Air Force Office of Scientific Research F49620-96-0028. 11/1/95-7/30/01. P.I.: AO Hero.

69. "Detection and resource allocation problems in ATR systems," Air Force Office of Scientific Research AASERT F49620-98-0370. 4/1/98-3/31/01. P.I. AO Hero.

70. "Robust automatic multimodality registration," National Institutes of Health, 4/1/97-3/31/00. P.I. C. R. Meyer.

71. "Estimation strategies for nuclear medical imaging," National Institutes of Health RO1CA54362, 3/1/95-2/28/00. P.I.: W. L. Rogers.

72. "Space-Frequency Image Processing," Missile Defense Agency MDA904-95-C-2157 , 6/1/95-11/31/96. P.I.: W.J. Williams.

73. "Cellular Network Modeling and Simulation for the Study of Cardiac Function," UM OVPR Research Partnership Award, 5/1/94-4/30/95. P.I.: AO Hero.

74. "Optimizing information transfer characteristics of tomographic imaging systems," National Science Foundation, BCS-9024370, 5/1/91 - 4/30/95. PI: AO Hero.

75. "Computation of content information and time frequency of biological signals," UM OVPR 1992. P.I.s: W. J. Williams and A. O. Hero.

76. "An integrated environment for image reconstruction and visualization," IBM/CAEN Distributed Computing Initative, 5/20/91. P.I.s: AO Hero and D. J. Anderson.

77. "Improving coincidence timing for positron imaging," National Institutes of Health: R01 CA46622-01, 3/1/88 - 9/1/91. P.I.: N.H. Clinthorne.

78. "Engineering research equipment grant: array processing equipment for communications and signal processing research," National Science Foundation. P.I.: W.E. Stark.

79. "Large deviations in delay estimation: models and alternatives," The University of Michigan Rackham School of Graduate Studies, 1/85-9/86. P.I.: AO Hero.

4 Teaching

4.1 University of Michigan courses taught

1. EECS 203, Discrete Mathematics.

2. EECS 206, Signals and Systems I.

3. EECS 210, Introduction to Electrical Engineering I.

4. EECS 353, Intro to Communications.

5. EECS 452, Digital Signal Processing Laboratory.

6. EECS 453, Analog Communications.

7. EECS 501, Probability and Random Processes.

8. EECS 545, Machine Learning.

9. EECS 559, Advanced Signal Processing.

10. EECS 564, Estimation, Filtering and Detection.

11. EECS 598, Random Graphs.

12. EECS 659, Adaptive Signal Processing.

13. EECS 750, Signal Processing: State of the Art and Unsolved Problems.

4.2 Post-doctoral students

1. Jamila Taaki (2024+), PhD from Univ Illinois Urbana Champaign.

2. Minoh Jeong (2024+), PhD from Univ Minnesota.

3. Dogyoon Song (2021-2023), PhD from MIT. Assistnt Professor, UC Davis.

4. Mehmet Aktukmat (2021-2022), PhD from Univ of South Florida. Senior AI Engineer, Intel.

5. Ren Wang (2020-2022), PhD from RPI. Assistant Prof at Illinois Institute of Technology.

6. Elyas Sabeti (2019-2021), PhD from Univ of Hawaii. Research Scientist, General Motors AI Lab, Austin TX.

7. Lin Zhou (2019-2020), PhD from National University of Singapore. Assistant Professor, Behang University, Beijing China.

8. Li Xu (2018-2019) PhD from CUHK-Shenzhen. Research staff, Industrial and Commercial Bank of China (ICBC).

9. Abram Magner (2018-2020), PhD from UIUC. Assistant Professor of Computer Science, SUNY Albany.

10. Rohit Gupta (2019-2020), PhD from University of Michigan. Assistant Professor of Aerospace Engineering, IIT Bombay.

11. Mayank Baranwal (2018-2020), PhD from UIUC. Adjunct Assistant Professor, IIT Bombay.

12. Salimeh Sekeh (2016-2019), PhD from Ferdowsi University of Mashhad. Assistant Professor, Univ of Maine Orono.

13. Farshad Harirchi (2016-2017), PhD from Colorado School of Mines. Research Staff, Ford Research, Dearborn MI.

14. Sijia Liu, (2016-2018), PhD from Univ. of Syracuse. Assistant Professor, Michigan State University.

15. Hye Won Chung (2014-2017), PhD from MIT. Assistant Professor at KAIST, Seoul South Korea.

16. Yasin Yilmaz (2014-2016), PhD from Columbia. Assistant Professor, University of South Florida, Tampa.

17. Taposh Banerjee (2014-2015), PhD from UIUC. Assistant Professor, University of Texas, San Antonio.

18. Jie Chen (2014-2015). PhD from Univ of Nice, France. Associate Professor at Northwestern Polytechnical University, Xian China.

19. Goran Marjanovic (2013-2014). PhD from Univ of South Wales, Australia. Research Scientist at Univ of New South Wales.

20. Alex Kulesza (2012-2014). PhD from Univ. of Pennsylvania. Research Scientist, Google New York.

21. Dennis Wei (2011-2013). PhD from MIT. IBM Watson Research, Yorktown Heights New York.

22. Gregory Newstadt (2013-2014). PhD from Univ of Michigan. Research Scientist, Google Pittsburgh.

23. Tsu-Yu Liu (2013). PhD from Univ of Michigan. Senior ML Scientist, Freenome, San Francisco CA.

24. Sung Jin Huang (2012). PhD from Univ of Michigan. Google Mountainview.

25. Francesca Bassi (2011-2012). PhD from Univ of Paris XI. Research Scientist, ENST. Paris France.

26. Koby Todros (2010-2012). PhD from Ben Gurion Univ, Israel. Associate Professor, Ben Gurion University, Israel.

27. Xu Chen (2010-2011). PhD from Univ of Illinois Chicago. Research Staff, Sharp Labs of America.

28. Roni Mittelman (2009-2011). PhD from Northeastern University. Senior Applied Scientist, Microsoft, Sunnyvale CA .

29. Ami Weisel (2007-2010). PhD from the Technion, Israel. Associate Professor, Hebrew University, Jerusalem Israel.

30. Nicolas Dobigeon (2007). PhD from Univ of Toulouse. Professor, ENSEEIHT, Toulouse France.

31. Mark Kliger (2006-2007). PhD from Ben Gurion Univ., Israel. Research staff, Medasense Biometrics, Israel.

32. Neal Patwari (2005-2006). PhD from Univ of Michigan. Professor, University of Utah.

33. Raviv Raich (2004-2007). PhD from Georgia Tech. Associate Professor, Oregon State University.

34. Pei-Jung Chung (2004). PhD from Ruhr-University Bochum. Lecturer, University of Edinborough, UK.

35. Cyrille Hory (2003-2004). PhD from Univ of Grenoble, France. Research staff, RATP, Paris.

36. Christophe Vignat (2000-2001). PhD from Univ Paris XI. Professor, University of Paris XI, France.

37. Stephane Chretien (1995-1998). PhD from Univ Paris XI. Professor, University of Lyon, Lyon France.

38. Olivier Michel (1993-1994). PhD from Univ Paris XI. Professor, INP Grenoble, France.

4.3   PhD students and thesis titles (University of Michigan)

1. Robert Malinas, Research Scientist MIT Lincoln Laboratory. Thesis title: Signal Detection with High-Dimensional Random Matrix Models, Dept. EECS, May 2025.

2. Conrad Hougen, Thesis title: Network Models for Learning Uncertain and Multimodal Data, Dept EECS, April 2025.

3. Zeyu Sun, Research Scientist, Google Alphabet Mountainview CA. Thesis title: Towards Calibrated, Sharp, and Interpretable Probabilistic Prediction, Dept. EECS, Sept. 2024.

4. Oliver Knitter, Thesis Title: Exploration of Quantum-Inspired Deep Learning Architectures for Fundamental Applications in Scientific Computing, Dept. Mathematics, Sept. 2024. (co-Chair with Shravan Veerapaneni).

5. Hoanan Zhu, postdoctoral fellow, Lawrence Livermore National Laboratory. Thesis title: Models and Inference for Complex Data with Applications in Nuclear Non-Proliferation and Microbial Systems, Dept of EECS, Sept 2023.

6. Neo Charalambides, Data Science psotdoctoral Fellow UCSD. Thesis title: Coding Theory and Sketching for Distributed Optimization, Dept of EECS, Aug 2023.

7. Yu (Wayne) Wang , Research Scientist, Google Alphabet Mountainview CA, Thesis title: Interpretable and Scalable Graphical Models for Complex Spatio-temporal Processes (co-chair Yang Wang), Dept of Statistics, July 2022.

8. Byoungwook Jang, Meta/Facebook NYC. Thesis title: Probabilistic Decomposition in Machine Learning Problems, Dept. of Statistics, April 2022.

9. Yaya Zhai, Research Scientist, Vivosense, Inc. Thesis title: "Digital Biomarker Models for Prediction of Infectious Disease Susceptibility." Dept of Computation Medicine and Bioinformatics, Aug 2021.

10. Yun Wei, Post-doc, Duke and SAMSI. Thesis title: "Theoretical Foundations for Clustering and Screening Heterogeneous and High dimensional Data." Dept of Mathematics (AIM), Jan. 2020.

11. Morteza Noshad, Post-doc at Stanford University. Thesis title: "Estimation of Information Measures and Applications in Machine Learning." Dept of EECS, Jan. 2020.

12. Joel LeBlanc, Michigan Tech Research Institute, Ann Arbor. Thesis title: "Optical Systems Identification for Passive Electro-Optical Imaging." Dept of EECS, Jan. 2020.

13. Elizabeth Hou, Research Staff, STR, Boston MA. Thesis title: "Anomaly Detection and Sequential Filtering with Partial Observations," Dept. of EECS, Jan. 2020.

14. Brandon Oselio. Research Scientist, Univ of Michigan. Thesis title: "Models and Inference with Network Structure," Dept of EECS June 2019.

15. Tian-Pei Xie, Applied Scientist, Amazon. Thesis title: "Robust Learning from Multiple Information Sources," Dept of EECS May 2017.

16. Kristjan Greenewald, Research staff IBM AI Lab. Past Post-doc Harvard University. Thesis title: "High dimensional covariance estimation for spatio-temporal processes," Dept of EECS Jan. 2017.

17. Pin-Yu Chen, Principal Research staff IBM Watson. Thesis title: "Analysis and actions on graph data," Dept of EECS Sept. 2016.

18. Kevin Moon, Assistant Professor Utah State University. Thesis title: "Nonparametric Estimation of Distributional Functionals and Applications," Dept of EECS Aug. 2016

19. Yu-Hui Chen, Software Engineer, Google, Mountainview. Thesis: "Multimodal image fusion and its applications," Dept of EECS Nov. 2015.

20. Dae-Yon Jung, Research Scientist, Korean manpower establishment. Thesis: "Feature selection and non-Euclidean dimensionality reduction: application to electrocardiology," Dept of EECS June 2015.

21. Hamed Firouzi, Quantitative Analyst, Goldman Sachs, New York, NY. Thesis: "High dimensional correlation networks and their applications," Dept of EECS Feb. 2015.

22. Zhaoshi Meng, Senior researcher at Vicarious, Inc., San Francisco CA. Thesis: "Distributed learning, prediction and detection in probabilistic graphs," Dept of EECS Aug. 2014.

23. Jeffrey Calder, Associate Professor of Mathematics, University of Minnesota. Formerly, Morrey Assistant Professor of Mathematics at UC Berkeley. Thesis: "Hamilton-Jacobi equations for sorting and percolation problems," Dept of Mathematics, Program in Applied and Interdisciplinary Mathematics (AIM), Apr. 2014.

24. Ko-Jen (Mark) Hsiao. Senior researcher at Whispers, Inc, San Francisco CA. Thesis: "Combining disparate information for machine learning," Dept. EECS Apr. 2014.

25. Ted Tsiligkaridis, Technical Staff, MIT Lincoln Laboratory, Lexington MA. Thesis: "High dimensional separable representations for statistical estimation and controlled sensing," Dept. EECS Dec. 2013.

26. Se-Un Park, Research staff, Schlumberger Research, Cambridge MA. Thesis "Reconstruction, Classification, and Segmentation for Computational Microscopy," Dept. EECS Aug. 2013.

27. Paul Shearer, Data scientist at MassMutual Financial Group, Boston MA (shearer.pr at gmail.com). Thesis: "Separable inverse problems, blind deconvolution, and stray light correction for extreme ultraviolet solar images," Dept of Mathematics, Program in Applied and Interdisciplinary Mathematics (AIM), May 2013 (co-advised with A. Gilbert and R. Frazin).

28. Greg Newstadt, Software Engineer, Google, Inc, Pittsburgh PA (newstage37 at gmail.com). "Adaptive sensing techniques for dynamic target tracking and detection with applications to synthetic aperture radars," Dept. EECS, Jan 2013.

29. Tzu-Yu Liu, Postdoc at Univ California Berkeley and at Univ Pennsylvania (joyliu at umich.edu). Thesis: "Statistical learning for sample-Limited high-dimensional problems with application to biomedical Data," Dept. EECS, Jan 2013.

30. Sung Jin Hwang, Software Engineer at Google, Inc, Mountain View, CA (ssjh at umich.edu). Thesis: "Geometric representation of high dimensional data," Dept. EECS, Oct 2012.

31. Kevin Xu, Assistant Professor, University of Toledo, OH (xukevin at umich.edu). Thesis: "Computational methods for learning and inference on dynamic networks," Dept. EECS, May 2012.

32. Kumar Sricharan, Chief Data Scientist at Inuit (previously research staff at Palo Alto Research Center (PARC), Palo Alto CA) (kksreddy at umich.edu). Thesis: "Neighborhood graphs for estimation of density functionals," Dept. EECS, April 2012.

33. Arnau Tibau Puig, Research staff at Walmart Labs, San Francisco CA (arnau.tibau at gmail.com). Thesis: "Learning from high-dimensional multivariate signals," Dept. EECS, Jan 2012.

34. Yilun Chen, Program Manager at Eaton Corporate Research and Technology, Shanghai China (alwyn.chen at gmail.com). Thesis: "Regularized estimation of high-dimensional covariance matrices," Dept. EECS, March 2011.

35. Yongsheng Huang, software engineer at DataBricks, Boston MA (Previously research Staff at Merck Research, Cambridge MA) (huangys at umich.edu). Thesis: "Integrative Statistical Learning and Applications in Predicting Features of Diseases and Health," Bioinformatics Program, Jan 2011.

36. Patrick Harrington, Director of Engineering, Walmart Labs, San Francisco CA (plhjr at umich.edu). Thesis: "Inverse problems in high dimensional stochastic systems under uncertainty," Bioinformatics Program, Aug. 2010.

37. Kevin Carter, Program manager, Microsoft (previously Associate Group Leader, at MIT Lincoln Laboratory, Lexington MA) (kmcarter at umich.edu). Thesis: "Dimensionality Reduction on Statistical Manifolds," Dept. of EECS, Dec. 2008.

38. Arvind Rao, Assistant Professor MD Anderson Cancer Center, Houston TX (ukarvind at umich.edu). Thesis: "Prospective identification of long-range transcriptional regulatory regions via integrative genomics," Bioinformatics Program and Dept. of EECS, July 2008.

39. Eran Bashan, CEO, Director and Founder, Hygiea Inc, Ann Arbor MI (bashan at umich.edu). Thesis: "Efficient resource allocation schemes for search," Dept. EECS, May 2008.

40. Jay Marble, Senior EW Engineer at URS Federal Services, Bloomington IN. Thesis: "Advances in surface penetrating technologies for imaging, detection, and classification," Dept. EECS, Dec. 2007 (Co-advised with Andrew Yagle).

41. Raghuram Rangarajan, Principal Engineer at Mimosa Networks, San Jose CA. Thesis: "Resource constrained adaptive sensing," Dept. EECS, Aug 2006.

42. Derek Justice, Research Staff at SAS Institute Inc, Raleigh NC. Thesis: "Inference methods for message endpoint localization in networks," Dept. EECS, Aug. 2006.

43. Dongxiao Zhu, Associate Professor at Wayne State University, Detroit MI (dongxiaozhu at gmail.com). Thesis: "Reconstructing Signaling Pathways from High Throughput Data," Dept. EECS, May 2006.

44. Doron Blatt, Head of Algorithmic Trading at DRW Trading Group, Chicago IL (dblatt at DRWHoldings.com). Thesis: "Performance Evaluation and Optimization for Inference Systems: Model Uncertainty, Distributed Implementation, and Active Sensing," Dept. EECS, May 2006.

45. Michael Ting, Software Developer at Criteo, Paris France (mting at umich.edu). Thesis: "Signal Processing for Magnetic Resonance Force Microscopy," Dept. EECS, May 2006.

46. Neal Patwari, Associate Professor of ECE at Univ. of Utah, Salt Lake City, UT (npatwari at ece.utah.edu). Thesis: "Location estimation in sensor networks," Dept. EECS, Sept. 2005.

47. Jose Costa, Quantitative Analyst at Teza Technologies, Chicago. Thesis: "Random graphs for structure discovery in high dimensional data," Dept. EECS, Aug. 2005.

48. Chris Kreucher, Senior Systems Engineer at Integrity Applications Incorporated in Ann Arbor, MI (christopher.kreucher at umich.edu). Thesis: "An information-based approach to sensor resource allocation," Dept. EECS, Feb. 2005.

49. Clyde Shih, Staff Research Scientist at KLA-Tencor Corp (mfshih at gmail.com), San Jose, CA. Thesis: "Unicast Internet Tomography," Dept. EECS, Jan. 2005.

50. Huzefa Neemuchwala, Senior Director for Data and Digital Solutions, Medtronic. "Thesis: Entropic graphs for image registration," Dept. BME, Jan. 2005.

51. Tom Kragh, Senior Principal Research Engineer, BAE Systems Inc, NH (thomas.kragh at baesystems.com). Thesis: "Tradeoffs and limitations in statistically based image reconstruction problems," Dept. EECS, Sept. 2002.

52. Jia Li, Associate Professor at Oakland University, MI (li4 at oakland.edu). Thesis: "Three dimensional shape modeling: segmentation, reconstruction and registration," Dept. BME, Jan. 2002.

53. Mahesh Godavarti, Chief Scientist at Ditech Networks (mgodavarti at ditechnetworks.com). Thesis: "Antenna arrays in wireless communications," Dept. EECS, July 2001.

54. Riten (Robby) Gupta, Research Staff TRW Inc, Los Angeles (Riten.Gupta at trw.com). Thesis: "Quantization Strategies for Low-Power Communications," Dept. EECS, May 2001.

55. Hyungsoo Kim, Research Engineer at Samsung Electronics, Korea (hns.kim at samsung.com, dearhs at hotmail.com). Thesis: "Adaptive target detection in radar imaging," Dept. EECS, Jan. 2001.

56. Bing Ma, Assistant Professor, University of Nevada, Las Vegas NV. (bingm at umich.edu). Thesis: "Parametric and non-parametric approaches for multisensor data fusion," Dept. EECS, Jan. 2001.

57. Robinson Piramuthu, Principal Research Scientist and Director of Computer Vision at eBay Research Labs. Thesis: "Robust fusion of MRI and ECT data, and acceleration of EM algorithm using proximal point approach," Dept. of EECS, May 2000.

58. Anne Sauve, Research Scientist, Lawrence-Berkeley National Laboratory. Thesis: "System modeling, sampling, interpolation and iterative reconstruction for the 3D Compton camera," Dept. of EECS, Jan. 2000.

59. Steven Titus, Chief Technical Officer, BIS Global, Raleigh NC. Formerly Director of Engineering at Echo360, Raleigh NC. Thesis: "Improved penalized likelihood image reconstruction of anatomically correlated emission computed tomography data," Dept. EECS, Oct. 1996. (Co-advised with Jeffrey Fessler)

60. Ilan Sharfer, Senior Algorithms Engineer, ECI Telecom, Israel. Thesis: "Recursive algorithms for digital communications using the discrete wavelet transform," Dept. EECS, Oct. 1996

61. Mohammad Usman, Vice President of Engineering, Masimo Corporation, Irvine CA (usman92691 at gmail.com). Thesis: "Biased and unbiased Cramer-Rao bounds: computational issues and applications," Dept. EECS, Aug. 1994.

62. Ron Delap, Professor and Dean of Engineering and Engineering Technology, LeTourneau University, Longview TX. Thesis: "ADEPT: Task Specific Adaptive Beamforming," Dept. EECS, May 1994.

63. Nick Antoniadis, Professor of Computer Engineering, TEI of Epirus, Greece. Thesis: "Time Delay Estimation for Inhomogeneous Poisson Processes in the Presence of Gaussian Noise," Dept. EECS, Oct. 1992.

64. Bulent Baygun, Head of Interest Rate Strategy, BNP-Paribas, New York NY. Thesis: "Optimal Strategies and Tradeoffs for Joint Detection and Estimation," Dept. EECS, Oct. 1992.

65. Nick Petrick, Deputy Director of the Division of Imaging and Applied Math and Director of the Image Analysis Laboratory, Food and Drug Administration (FDA). Thesis: "Optimal Arrival Time Estimators for Electromagnetic Radiation Detectors," Dept. EECS, July 1992.

66. John Gorman, Program Manager at DARPA. Thesis: "Error Bounds in Constrained Estimation," Dept. EECS, June 1991.

67. Ling Shao, Director of Imaging Physics, Philips Healthcare, CA. Thesis: "Mutual Information Optimization and Evaluation of Single Photon Computed Tomography," Bioengineering Program, Oct. 1989.

68. Joong K. Kim, Professor at Sung Kyun Kwan University, Korea (jkkim at yurim.skku.ac.kr). Thesis: "Time Delay Estimation with Nuisance Parameters: Performance Approximation and Coarse Acquisition," Dept. EECS, Oct. 1989.

4.4   Major Short Courses

1. "Computational machine learning," half day tutorial (remote due to the pandemic) given to the US National Laboratories at the ETI NNSA Summer School, Aug 2020.

2. "Signal Processing for Graphs," half day Tutorial (w/ Nadya Bliss and Ben Miller), IEEE Intl Conf on Acoustics, Speech and Signal Processing (ICASSP), Florence Italy, May 2014.

3. "Complexity, Information, and Geometry," Ecole d'été GRETSI, Peyresque, France, July 2008.

4. "Signal Processing as Enabler for Wide Area Distributed Network Applications: Statistical Signal Processing for Network Inference," IEEE International Conference on Information, Communications and Signal Processing (ICICS'2007), Singapore, Dec. 2007.

5. "Signal processing for integrative bioinformatics," Tutorial, Workshop on Information Theory and Applications (ITA), Jan 2008.

6. "Statistical signal processing for networks," half day tutorial, Intl Conference on Information, Communications and Signal Processing (ICICS), Dec 2007.

7. "In vitro measurement of gene expression, Part II: Analysis," IEEE Intl Symposium on Biomedical Imaging (ISBI) Tutorial, AO Hero, Washington DC, April 15 2004.

8. "Signal detection theory and application," A.O. Hero, five day short course given at EG&G, Inc. , Las Vegas, NV, June 1998.

9. "Methodes d'evaluation de l'erreur minimale atteignable en estimation de paramètres," AO Hero, one day short course on Evaluation et Utilisation de Bornes d'Erreur en Estimation Paramètrique, University of Nice, France, Nov.29, 1991.

10. "Aspects of optimal estimation theory," AO Hero, short course given at Laboratoire des Signaux et Systèmes (LSS) Ecole Supérieure d'Electricité, Gif-sur-Yvette, France, Oct. 1991.

5 Service

5.1 National Leadership Positions

- Program Director, CISE Directorate, CCF Division, CIF Cluster, US National Science Foundation. Sept 2022-

- Chair, National Academies of Science, Engineering and Medicine (NASEM) Committee on Applied and Theoretical Statistics 2017-2020

- Chair, arXiv Electrical Engineering and Systems Science super-category (arxiv.eess domain). June 2017- 2022

- General Co-Chair, IEEE Intl. Symposium on Information Theory, Paris 2019.

- Co-Chair, National Academies Study on Envisioning Data Science Education, Washington DC, June 2016-2017.

- Co-Chair, National Academies Workshop on Refining the Concept of Scientific Inference When Working With Big Data, Keck Center, Washington DC, June 2016.

- General Chair, IEEE Workshop on Statistical Signal Processing (SSP), Ann Arbor, 2012.

- Director, IEEE Division IX (Signals and Systems), 2010-2011.

- President, IEEE Signal Processing Society, 2006-2007.

- Chair, U.S. Commission C, International Union of Radio Sciences (URSI), (1999-2001)

- V.P. Finance, IEEE Signal Processing Society, 2000-2002.

- Chair, IEEE Statistical Signal and Array Processing (SSAP) Technical Committee, IEEE Signal Processing Society, (1996-1998)

- General Chair, IEEE International Conference on Accoustics Speech and Signal Processing (ICASSP), 1995.

5.2 Advisory Boards

- US Government Liason (2022-), International Advisory Board, SSAISS, CNRS France.

- US Government Liason (2022-), International Advisory Committee , Brazilian Institute for Data Science (BIOS), University of Campinas, Brazil.

- Member (2022), International Advisory Board, SSAISS, CNRS France.

- Member (2022), International Advisory Committee, Brazilian Institute for Data Science (BIOS), University of Campinas, Brazil.

- Member, External Advisory Committee (2021-2022), Goergen Institute for Data Science (GIDS), University of Rochester, Rochester NY.

- Member, External Advisory Board (2021-2022), AI4Opt an NSF funded Institute for Advances in Optimization, Georgia Institute of Technology

- Member (2015-2022), National Academy of Science, Engineering and Medicine, Intelligence Science and Technology Experts Group (ISTEG)

- Co-Chair (2017-2022), National Advisory Committee, NSF Statistical and Applied Mathematical Sciences Institute (SAMSI), Research Triangle Park NC

- Member (2020-2022), "Academic Expert Committee for Shenzhen Research Institute of Big Data (SRIBD), Chinese University of Hong Kong (CUHK) - Shenzhen.

- Consulting Professor (2017-2022), Northwest Polytechnical University, Xi'an, China.

- Member (2017), Strategic Review Committee, Harvard University Department of Biostatistics

- Member (2016), Visiting Committee, Purdue University Statistics Department.

- Member (2012-2018), Strategic Advisory Group, UK University Defence Research Consortium (UDRC) headed by University of Edinburgh

- Member (2016), External review committee, Purdue University Department of Statistics

- Member (2012), External Advisory Board, Dept of ECE, College of Engineering, Duke University

- Member (2014-2019) Advisory Board , International Centre for Mathematics and Computer Science, Toulouse, France

- Member (2010-2014), Research Advisory Board, Ecole Superieure d'Electricite (SUPELEC), Paris France.

- Member (2009), Visiting Committee, Dept of ECE, College of Engineering, Boston University.

5.3 Editorial Boards

- Associate Editor, Book Series on Information Sciences and Learning, NOW Publishers, 2021-2022.

- Associate Editor, Harvard Data Science Review (HDSR), 2019-2022.

- Guest Editor, Journal of Mathematical Imaging and Vision (JMIV), 2019-2021

- Founding Section Editor of SIAM Journal on Mathematics of Data Science (SIMODS), 2018-2022.

- Senior Editor, IEEE Journal on Selected Topis in Signal Processing 2015-2021.

- Chair and Moderator, arxiv EESS (super-category equivalent to those in CS, PHYS, and MATH), 2017-2022.

- Guest Editor, IEEE Journal on Selected Topics in Signal Processing 2012-2013, 2014-2015, 2016-2017.

- Guest Editor, IEEE Transactions on Signal and Information Processing in Networks, Special Issue on Distributed Information Processing in Social Networks 2016-2017.

- Editeur Associé, Traitement du Signal 2008-2014.

- Associate Editor, IEEE/ACM Transactions on Computational Biology and Bioinformatics (2003-2008).

- Guest co-Editor (Guest Editor, A. Singer), Special Issue on Signal Processing and Machine Learning, IEEE Transactions on Signal Processing, 2003-2004

- Guest co-Editor (Guest Editor, R. Riedi), Special Issue on Signal Processing for Networking, IEEE Transactions on Signal Processing, Sept. 2003

- Guest co-Editor (w/ H. Krim), Special Issue on Mathematical Imaging, IEEE Signal Processing Magazine, Oct. 2002

- Guest Associate Editor (w/ D. Snyder, P. Moulin, J. O'Sullivan), Special Issue on Information Theoretic Imaging, IEEE Transactions on Information Theory, 1999-2001

- Guest Editor, IEEE Signal Processing Magazine, Special Issue on Statistical Signal and Array Processing, 1996.

- Associate Editor, IEEE Transactions on Information Theory, 1994-1998.

5.4 Conference Organization

- Co-organizer, Special Session on "Statistical and Machine Learning Efforts on Solar Flare Predictions," Joint Statistical Meetings (JSM), Aug 2021.

- International Liason, IEEE Workshop on Machine Learning and Signal Processing (MLSP), 2022, Xian China.

- General co-Chair, IEEE Intl. Symposium on Information Theory, Paris France July 2019

- Co-chair, Keynote and Tutorials, IEEE Data Science Workshop, Minneapolis June 2019

- Chair, ARO Workshop on Geometry of information and computation, 2018

- Organizing Committee, Fall 2017 Semester on Generative Models, Parameter Learning, and Sparsity, Isaac Newton Institute, Cambridge, UK. Januray 2014-2017

- Program Committee, Workshop on Transdisciplinary Complex Systems Framework for Convergence Research, University of Maryland. 2017.

- Panel and breakout Moderator, "Big Data and Networks," National Academies of Science, Engineering and Medicine TRB Workshop on Research Partnerships for Transformation of Transportation. Nov 2016

- Panel Moderator, "Privacy and cybersecurity," Workshop on Big Data for Finance, UM Law School, Oct. 2016

- Co-Chair, IEEE International Symposium on Information Theory, Paris 2019

- Member, Program Committee, Partial Least Squares Conference, Paris 2014.

- Member, IEEE Intl Symposium on Information Theory Technical Program Committee, Hawai 2014.

- Member, IEEE GlobalSIP Active Sensing Symposium Technical Committee

- Member, IEEE GlobalSIP SP in Finance and Economics Symposium Technical Committee

- Member, Technical Program Committee, IEEE Information Theory Symposium (ISIT). 2012, 2014.

- General Chair, IEEE Workshop on Statistical Signal Processing (SSP), Ann Arbor, 2012.

- Organizer, ARO Workshop on Sensor Information Estimation and Exploitation, Ann Arbor 2012.

- Co-Chair, 1999 IEEE Workshop on Higher Order Statistics, Caesaria ISRAEL, June 1999.

- Co-Chair, 1999 IEEE Workshop on Information Theory, Santa Fe, Feb. 1999.

- General Chairman, 1995 IEEE International Conference on Acoustics, Speech, and Signal Processing, Detroit, 1995.

- Program committee member, IEEE Nuclear Science Symposium and Medical Imaging Conference, San Francisco, 1994 -

- Chairman for Publicity, 1986 IEEE International Symposium on Information Theory.

- Member Education Committee, IEEE Signal Processing Society, 1993-1995

- Co-chair, (w/ P. Barford, C. Partridge, W. Willinger) 2nd Workshop on Internet Signal Processing (WISP) Madison WI, 2004

- US Liason, European Signal Processing Conference, Toulouse, France, Sept. 2002.

- Program committee member, SPIE Int. Symposium on Optical Science, Engineering, and Instrumentation, San Diego, 1998.

5.5 Service to IEEE - Institute of Electrical and Electronic Engineers

- Member of organizing Committee, IEEE Workshop on Machine Learning for Signal Processing, Xian China, 2022.

- Co-chair, Keynote and Tutorials, IEEE Data Science Workshop, Minneapolis June 2019

- Co-General Chair, IEEE Symposium on Information Theory, Paris, 2019.

- Senior Editor, IEEE Journal on Selected Topics in Signal Processing, 2015-

- Member, IEEE Special Interest Group on Big Data, 2013-

- Co-General Chair, IEEE Shannon Centennial Symposium, Ann Arbor, MI Sept 2016

- Member, IEEE TAB Nominations and Appointments Committee, 2012-2014.

- General Chair, IEEE Workshop on Statistical Signal Processing, 2012

- Member, IEEE Awards Board, 2010-2012.

- Member, IEEE Life Sciences Initiative Committee, 2011-2012.

- Member, Organizing Committee of IEEE Life Sciences Grand Challenge Conferences, National Academy of Sciences, 2012.

- Chair, IEEE Board of Directors Ad Hoc Committee on Conference Quality, 2009.

- Director, IEEE Division IX, 2010-2011 (Director-elect in 2009)

- Member, IEEE Board of Directors, 2010-2011

- Member, IEEE Signal Processing Society Lensing oversight Committee, 2008-2009.

- Member, IEEE Society Review Committee 2008

- Member, IEEE International Committee on Earth Observation 2008

- Chair, Nominations and Appointments Committee, IEEE Signal Processing Society 2008-2009

- Chair, Lensing Oversight Committee, IEEE Signal Processing Society 2008

- Member, IEEE TAB Periodicals Board 2006-2008

- President, IEEE Signal Processing Society 2006-2007

- General Chair, IEEE International Conference on Acoustics, Speech and Signal Processing, 1995.

- President-Elect, IEEE Signal Processing Society 2004-2006

- Chair, Technical Directions Committee, IEEE SP Society 2004-2006

- Chair, Long Range Planning and Implementation Committee, IEEE SP Society 2004-2006

- Chair, ad hoc Biological Imaging and Signal Processing (BISP) committee, IEEE SP Society 2004-2005

- Chair, ad hoc Information Forensic and Security (IFS) committee, IEEE SP Society 2005-2006

- Panelist, Panel on Women in Signal Processing, IEEE ICASSP-05, Philadelphia, Mar 2005.

- Vice President – Finance, IEEE Signal Processing Society, 2000-2002

- Member, Executive Committee, IEEE Signal Processing Society, 2000-2008

- Member, Board of Governors, IEEE Signal Processing Society, 2000-2005

- Member, Signal Processing Theory and Methods Technical Committee, IEEE Signal Processing Society, 1999-2004

- Member Conference Board, IEEE Signal Processing Society, 1992-2002

- Member Publications Board, IEEE Signal Processing Society, 2000-2002

- Member, Technical Directions Committee, IEEE Signal Processing Society, 1996-1998

- Treasurer, IEEE Signal Processing Society Conference Board, 1996-1999.

- Chairman, Statistical Signal and Array Processing Technical Committee, IEEE Signal Processing Society, 1996-1998

- Chairman, Ad Hoc Task Force for Restructuring IEEE Signal Processing Society, 1998

5.6 Service to National Academies of Science, Engineering and Medicine (NASEM)

- Panel Member, NASEM Study on Advanced and Automated Workflows, 2019-2022.

- Chair, NASEM Committee on applied and theoretical statistics (CATS) (a subcommittee of the Board of Mathematical Sciences and Analytics), 2017-2020.

- Co-Chair of NASEM Study on Envisioning undergraduate data science education (sponsered by the National Science Foundation), 2016-2018.

- Co-Chair, NASEM Workshop on Causal Inference (sponsored by the National Science Foundation), June 2016.

- Member, NASEM Roundtable on Data Science Postsecondary Education (sponsored by Gordon and Betty Moore Foundation, the National Institutes of Health Big Data to Knowledge program, the National Academy of Sciences, W. K. Kellogg Foundation Fund, the Association for Computing Machinery, and the American Statistical Association), Jan 2017-

- Member, Transportation Research Board Forum: Preparing for Automated Vehicles and Shared Mobility, 2017-

- Member, Organizing committee for the Transportation Research Board (TRB) Partners in Research Symposium: Transportational Technologies, 2015.

- Member, NASEM Intelligence Science and Technology Experts Group (ISTEG), 2015-

- Member, Organizing Committee for 2014 NASEM Workshop on "Automating image and video analysis for fisheries stock assessment" (sponsored by National Oceanic and Atmospheric Adminstration).

- Member, NASEM Committee on applied and theoretical statistics (CATS), 2012-

- Panelist, IED Workshop, National Academy of Sciences, 2008

- Member, ARL-TAB (reviews research at Army Research Laboratory (ARL), National Research Council (NRC), 2004-2005.

- Chair, Cross Cutting Robotics Panel of ARL-TAB, National Research Council (NRC), 2004.

- Member, Sensors and Electronic Devices (SED) Panel of ARL-TAB, National Research Council (NRC), 2002-2005.

5.7   Service to Government Agencies

National Science Foundation:

- Program Director, CCF Division (CIF Cluster), US National Science Foundation (2022-)

- Member, NSF Proposal Review Panels (1995-2022)

- Member, NSF CISE UIUC site visit team (2008)

- Organizer and Chair, NSF Workshop on active sensing, 2005.

- Member, NSF ITR review panels, 2003-2004.

- Co-Chair, NSF/DARPA Workshop on Genomic Signal Processing and Statistics (GENSIPS), Oct. 2002.

- Chair, NSF Workshop on Challenges in Pattern Recognition, Mar. 2002.

- Member, NSF CAREER Panel, Nov. 2001.

- Member, NSF Advisory Panel for Interfaces between Signal Processing and Statistics, 1995.

Department of Energy:

- Panelist, DOE/NNSA LB20-ML-DomainAwarenessAlgorithms Independent Review Panel (June 2021).

- Panelist, DOE/NNSA LB21-ML-Rad Nuc Datasets Independent Review Panel (Oct 2021).

- Panelist, DOE/NNSA LB20-ML-DomainAwarenessAlgorithms Independent Review (Nov 2021).

- Panelist, DOE/NNSA LB22-ML-Adaptive NMF-Based Algorithms Kickoff Meeting (Dec 2021).

- Panelist, DOE/NNSA SL18-Detection by Persistence-PD3RZ Independent Review (Sept 2019).

National Institutes of Health (NIH):

- Presenter and participant, NIH Sleep Biomarkers meeting. NIH June 2015.

- Study Section member NIH (1992, 1993, 1996, 1997, 1998, 2002, 2004)

Government Research Planning Workshops

- Panelist, NSF Workshop on Pandemic Readiness for Emerging Pathogens, Feb 2021.

- Organizer and Chair, ARO Workshop on Geometry of Information and Computation for Machine Learning 2018.

- Participant, NSF smart and connected health visioning, Boston University 2017

- Member, ARO internal research review panel, Army Research Laboratory 2015, 2016

- Participant, NSF workshop on geometry for signal processsing and machine learning, Estes Park CO 2016

- Participant, OSD sensing and analysis of high-dimensional data workshop. Duke University 2015

- Participant, NSF workshop on foundations of data science, Ballston 2016.

- Participant, AFRL workshop on information fusion. Dayton 2015.

- Participant, NIH Sleep biomarkers meeting, Bethesda 2015

- Participant, DARPA data science meeting, Ballston 2014.

- Participant, NSF data science in engineering, Ballston 2014.

- Participant, AFRL Tomography in Materials Science 2010

- Participant, NSF/IARPA Science of Security Workshop 2008

- Member, ARO Computer Information Sciences Division Strategy Workshop 2008

- Organizer, ARO Workshop on Signal and information processing 2007.

- Member, DARPA ISAT Panel on Function specific networks 2012

- Member, IARPA Panel on Science of Security 2008

- Member, DARPA Panel on ISAT-AIR 2006

- Member, AFOSR Panel on ATR 2004

- Member, DARPA Panel on GUMBY 2004

- Member, DARPA Panel on Multistage Scheduling 2004

- Member, DARPA Multi-User Detection Study Group, April-July 2000.

- Member, Army Research Lab Technical Activities Board (ARLTAB), coordinates yearly review of ARL's research activities, 2004-2006.

5.8 Service to the University of Michigan

- Member, ECE Graduate Committee, Dept. EECS, Univerisity of Michigan, 2022.

- Member, Professorship Advisory Committee, College of Engineering, Univeristy of Michigan, 2019-2020

- Chair, Signal and Image Processing and Machine Learning Area Chair, Dept of EECS, University of Michigan 2019-2020

- Graduate Advisor, Signal and Image Processing and Machine Learning Program, Dept of EECS, University of Michigan 2019-2020

- Member, Faculty Grievance Panel, College of Engineering University of Michigan, 2019-2021.

- Member, Faculty Launch Committees, Danai Koutra (EECS - 2016), Yang Chen (Statistics - 2017), XX (Statistics - 2019)

- Member, Advisory Committee of Precision Health Initiative, University of Michigan, 2018-.

- Co-Director, Michigan Institute for Data Science, University of Michigan, 2015-2018.

- Member, Executive Committee, UM Office of Research Advanced Research Computing (UMOR ARC), member 2016-2018.

- Member, University Distinguished Professor Award Committee, member 2017-2019

- Member, Executive Committee, Electrical and Computer Engineering Division, Dept. of Electrical Engineering and Computer Science, member 2015-2017

- Member, Joint SJTU/UM research program committee, UM office of Research. Member 2016-2017.

- Member, New Faculty Launch Committee, Assistant Professor Yang Chen, Dept. of Statistics 2017.

- Graduate advisor, Signal Processing graduate program, Dept. of EECS 2012-2013, 2014-2015.

- Member, New Faculty Launch Committee, Assistant Professor Danai Koutra, Dept. of EECS 2016.

- Member, Rackham Distinguished Faculty Achievement Award committee 2011-2013

- Member, ECE Awards Committee 2010-2011

- Member, College of Engineering Awards Committee 2010-2011

- Member, ECE Executive Committee Committee 2008-2009

- Member, ECE Faculty Search Committee 2007-2012, 2014-2016

- Interim Director, Systems Laboratory, Dept. of EECS 2007-2008

- Area Coordinator, Signal Processing, Dept. of EECS 2005-2015.

- Member, College of Engineering EECS Internal Review Committee, 2003-2005

- Member, EECS Atrium Renovation committee, 2003-2004.

- Faculty Advisor, Michigan Gamma Chapter of Tau Beta Pi, 2002-2005

- Graduate Counselor, Signal Processing Program, Dept. EECS, 2001-2019

- Member, ECE Faculty Search Committee, Dept EECS, 2002-2005

- Member, College of Engineering EECS Chair Search Committee, 2001-2003

- Member, EECS Awards Committee, 2000-2001

- Member, EECS Executive Committee, 2000-2002

- Member, EECS-EES Graduate Committee, 2000-2002

- Member, Faculty Search Committee for Communications and Signal Processing, 2000-2001

- Member, Departmental Computing Organization (DCO), 1999-2000

- Co-Chair of Admissions, Systems Division Graduate Program, 1997-.

- Director, Communications and Signal Processing Laboratory (CSPL) 1996-2000.

- Chair, College Rules Committee, College of Engineering 1996-1997.

- Chair, Signal Processing Processing Area, 1991-1996

- Chair, Faculty Search Committee for Signal Processing, 1994-1996, 1999-2000.

- Member, College of Engineering Faculty Discipline Committee, 1993-1998.

- Member, EECS Executive Committee, 1990-1992.

- Member, Blue Ribbon Committee for EECS Undergraduate Curriculum, 1991-1992.

- Member, EES Graduate Committee, Sept. 1985-1990, 2000-2002.

- Member, Systems Division Executive Committee, 1988-1989.

- Graduate Advisor for Signal Processing Program, Systems Division, 1985-1990.

- Member, EES Graduate Financial Aid Committee, 1987-1990.

- Member, Systems Division Seminar Committee, 1987, 1988, 1990, and 1991.

5.9   Precollege Outreach Activities

- Co-organizer, MIDAS High School Summer Camp, Michigan Institute for Data Science. 2016-2018

- Judge, American Statistical Association Special Awards for Southeast Michigan Science Fair, 2008-.

- Mentor, NASA SHARP Program, 2004-2005. Hosted high school students during the summers.

6   Membership in Professional Societies

- The Society for Industrial and Applied Mathematics (SIAM). Fellow (2021)

- The Institute of Electrical and Electronic Engineers (IEEE) - since 1978. Fellow (1998), Life Fellow (2021)

- American Society for Engineering Education (ASEE). Member

- American Association for the Advancement of Science (AAAS). Member

- The American Statistical Association (ASA). Member

- The International Union of Radio Science (URSI), Commission C. Member.

- Tau Beta Pi. Member