Alfred Olivier Hero III

Curriculum Vita

February 26, 2012

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

Permanent Positions

2009-Present	R. Jamison and Betty Williams Professor of Engineering
2000-Present	Professor, Electrical Engineering and Computer Science, Biomedical Engineering, and Statistics.
1996	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.

Other Positions

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. (Sabbatical)
2006-2007	Visiting Professor, Boston University, Boston, MA.(Sabbatical)
2001	Visiting Professor, Université de Nice-Sophia Antipolis, Sophia-Antipolis, France. (Summer)
1999	Visiting Professor, Ecole Nationale Supérieure des Télécommunications (ENST), Paris, France. (Sabbatical)
1999	Visiting Scientist, Bell Laboratories, Lucent Technologies, Murray Hill, NJ.
1999	Visiting Scientist (Chargé de Recherche), CNRS, Ecole Normale Supérieure (ENS), Lyon, France. (Sabbatical)
1993	William Clay Ford Fellow, Scientific Research Laboratory, Ford Motor Co., Dearborn MI. (Summer)
1991 - 1992	Visiting Scientist, Ecole Nationale Supérieure des Techniques Avancées, Paris, France. (Sabbatical)
1987-1989	Visiting Scientist, M.I.T. Lincoln Laboratory, Lexington, MA. (Summer)

1.2 University 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

Awards

1. 2011 Rackham Distinguished Faculty Achievement Award, University of Michigan
2. IEEE ICASSP Best Student Paper Award, for a paper co-authored with student Alexander Jung at the 2011 IEEE Intl Conf. on Acoustics, Speech and Signal Processing (ICASSP), Prague 2011.
3. SPIE Best Student Paper Award, for a paper co-authored with student Greg Newstadt at the SPIE Defense, Security and Sensing conference, 2011.
4. 2010 Best Paper Award, for paper with former student N. Patwari. Appeared in IEEE Signal Processing Magazine in 2005.
5. R. Jamison and Betty Williams endowed chair in Engineering, University of Michigan, 2009-.
6. 2008-2009 Best Original Research Paper Award, for paper with former student K. Carter. Appeared in J. of Cytometry Part B - Clinical Cytometry in 2008.
7. General Dynamics Medal (w/ C. Kreucher and K. Kastella of GD) for best published paper co-authored by GD employee, 2003 and 2005.
8. College of Engineering Research Excellence Award, The University of Michigan, 2003.
9. Distinguished Lecturer, IEEE Signal Processing Society, 2002-2003.
10. IEEE Third Millenium Medal recipient, 2000.
11. 1998 Best Paper Award, for paper in IEEE Trans. on Signal Processing in 1996.
12. Meritorious Service Award, IEEE Signal Processing Society, 1998.
13. Fellow of IEEE, 1997.
14. Research Excellence Award, Dept. of EECS, The University of Michigan, 1995.

Plenary and Keynote Presentations

1. "Pattern discovery from high throughput biological data," Great Lakes Bioinformatics Conference (GLBIO), May. 2011.
2. "Performance-driven information fusion," IEEE Workshop on Sensor Array and Multichannel SP (SAM), Jerusalem, Oct. 2010.
3. "Geometric entropy minimization", Workshop on Topological and Geometric Data Analysis, Paris, July. 2009.

4. “Rényi entropies for statistical signal processing", IEEE Digital Signal Processing Workshop, San Marco Island, Jan. 2009.

5. “Sparsity Constrained Volumetric Imaging", SIAM Great Lakes Workshop on Applied Mathematics, Ann Arbor, April 2008.

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

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

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

9. “Sensor networks for localization and tracking," New York Workshop on Sensor Networks, Rochester, Oct 2005.

10. “Information Theoretic Approaches to Adaptive Sensing and Sensor Management," IEEE Statistical Signal Processing Workshop, June 2005.

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

12. “Gene Profiling, Clustering, and Networking," ICASSP 2005, Philadelphia, Mar. 2005.

13. “Statistical Signal Processing for Gene Microarrays," EUSIPCO 2004, Vienna, Sept. 2004.

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

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

16. “Signal Processing for Genomics," 6th IEEE/URSI Conference on Applications of Signal Processing, Beijing, Aug. 2002.

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

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

Festschrift and honorary presentations

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

2. A. O. Hero, “Inference in structured graphical models," Workshop to honor MIT Professor Alan Willsky, Cambridge MA, May 2008.

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

4. A. O. Hero, “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.

5. A. O. Hero, “CFAR Target Detection in Imaging Radar," Symposium to honor USC Professor Irving Reed, Univ. Southern California, Los Angeles, Nov. 1998.

3 Research

Current research Interests:

Statistical signal processing and imaging, data mining, bioinformatics and integrative genomics, statistical machine learning and pattern recognition, wireless sensor networks, sensor management.

Summary of research output

I. Publications: 138 journal articles and over 340 conference papers published.
II. Patents: 3 patents issued.
III. Research Grants: Participated as PI or co-PI in over 40 grants and contracts.
IV. Research students: 36 PhD students and 14 post-doctoral students supervised

3.1 Research publications

3.1.1 Submitted Refereed Journals

1. S.-J. Hwang, S. Damelin, A.O. Hero, "Shortest path through random points," submitted
2. K. Todros and A.O. Hero, "On Measure Transformed Canonical Correlation Analysis," submitted.
3. K. Sricharan, R. Raich and A.O. Hero, "Estimation of non-linear functionals of densities with confidence," in revision
4. A. O. Hero and B. Rajaratnam, "Hub discovery in high dimensional partial correlation graphs," in revision
5. Cécile Bazot, Nicolas Dobigeon , Jean-Yves Tourneret , Aimee K. Zaas, Geoffrey S. Ginsburg, Alfred O. Hero, "Unsupervised Bayesian linear unmixing of gene expression microarrays," submitted.
6. KS. Xu, M. Kliger, AO Hero, "A regularized graph layout framework for dynamic network visualization," in revision.
7. S.-U. Park, N. Dobigeon, A.O. Hero, "Semi-blind Sparse Image Reconstruction with Application to MRFM," in revision
8. S.-U. Park, N. Dobigeon, A.O. Hero, "Variational Semi-blind Sparse Deconvolution with Orthogonal Kernel Bases," submitted.
9. KS. Xu, M. Kliger, AO Hero, "Adaptive evolutionary clustering," in revision. Available as arXiv:1104.1990
10. L. Gallucio, O. Michel, P. Comon, M. Kliger, P. Bendjoya, A. O. Hero, "Clustering by dual rooted trees," in revision

3.1.2 Published Refereed Journals

1. Y. Chen and A. O. Hero, "Recursive $\ell_{1,\infty}$ group lasso," to appear in the IEEE Trans on Signal Processing, 2012.
2. 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 3, pp. N/A, Mar. 2012.

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

4. M. Yokokawa, T-Y Liu, K. Yoshida, C. Scott, A. 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.

5. L. Gallucio, O. Michel, P. Comon, E. Slezak, A. O. Hero, "Graph Based k-Means Clustering," EURASIP Journal on Signal Processing, published online 20 Jan 2012.

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

7. E. Oubel, M. De Craene, A. O. 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.

8. L. Carin, A.O. 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.

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

10. A. O. 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.

11. 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, A.O. Hero, S. Jones, and J. L. Hess, "Identification and characterization of Hoxa9 binding sites in hematopoietic cells," Blood, 2011. doi:10.1182/blood-2011-03-341081. Published online Nov 9, 2011

12. 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.

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

14. Y. Huang, AK Zaas, A. Rao, N. Dobigeon, PJ Woolf, T. Veldman, NC Øien, 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

15. S. Chretien, A. O. 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

16. 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.

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

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

19. W.G. Finn, A. M. Harrington, K.M. Carter, R. Raich, A.M. Harrington, S.H. Kroft, and A. O. 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.

20. M. Chen, D. Carlson, A. Zaas, C. Woods, G. Ginsburg, A. O. 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.

21. 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.

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

23. H. Park, A.O. 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.

24. N. Dobigeon, S. Moussaoui, M. Coulon, J.-Y. Tourneret and A.O. 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.

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

26. K. Yoshida, T.-Z. Liu, C. Scott, A.O. 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.

27. 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.

28. A. Rao, D. States, A. O. 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.

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

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

31. A.K. Zaas, M. Chen, J. Varkey, T. Veldman, A.O. 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.

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

33. N. Dobigeon, J.-Y. Tourneret, S. Massaoui, M. Coulon and A.O. 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.

34. N. Dobigeon, A.O. 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.

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

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

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

38. J.A. Sidles, J.L. Garbini, L.E. Harrell, A.O. 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

39. K. Carter, R. Raich, W.G. Finn and A. O. 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.

40. E. Bashan, R. Raich., and A. O. 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.

41. W.G. Finn, K. Carter, R. Raich, L. Stoolman and A. O. 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**.

42. A. Rao, A. O. 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.

43. S. Chretien and A. O. 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.

44. A. Rao, A. O. 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.

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

46. C. M. Kreucher, A. O. 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.

47. R. Rangarajan, A.O. 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.

48. M.-F. Shih and A. O. 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.

49. R. Rangarajan, A.O. 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.

50. D. Blatt and A. O. 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.

51. P.-J. Chung., J.F. Böhme, C.F. Mecklenbräuker, A. O. 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.

52. H. Neemuchwala, A. 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**)

53. A. Rao, A. O. 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.

54. A. Rao, A. O. 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.

55. D. Blatt, A. O. 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.

56. M. Godavarti and A.O. 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.

57. C. Kreucher, D. Blatt, A. 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.

58. D. Justice and A. O. 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.

59. 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.

60. D. Justice and A.O. 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.

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

62. D. Blatt and A. O. 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).

63. M. Ting, A. O. 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.
64. J. Costa, N. Patwari and A. O. 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.
65. D. Zhu, A.O. 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.
66. D. Zhu, A.O. 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).
67. M. Godavarti and A. O. Hero, "Partial update LMS algorithms," IEEE Trans. on Signal Processing, vol. 53, No. 7, pp. 2382-2399, July 2005.
68. N. Patwari, J. Ash, S. Kyperountas, S. Kyperountas, A. O. 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**
69. M. Godavarti, A. O. 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.
70. C. Kreucher, K. Kastella, and A. 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. General Dynamics Medal Paper Award for 2005.
71. H. Neemuchwala, A. O. 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.
72. C. Kreucher, D. Blatt, A. 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.
73. C. Kreucher, K. Kastella, and A. Hero, "Sensor Management Using An Active Sensing Approach,'"Signal Processing, Vol. 85, No. 3, pp. 607-624, March 2005.
74. C. Vignat, A. O. Hero and J. Costa, "About closedness by convolution of the Tsallis maximizers," Physica A, Vol. 340, Issue 1-3, pp. 147-152, Sept. 2004.
75. S. Zareparsi, A.O. 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
76. J. Costa and A. O. 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.
77. P.-J. Chung, J. B̀ohme, and A. O. 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.
78. S. Yoshida, A. J. Mears, J. S. Friedman, T. Carter, S. He, E. Oh, Y. Jing, R. Farjo, G. Fleury, C. Barlow, A. O. 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.
79. M. Godavarti and A. O. Hero, "Convergence of differential entropies," IEEE Trans. on Info Theory, Vol 50, No. 1, pp. 171-176, Jan. 2004.

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

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

82. G. Fleury, A. 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.

83. A. 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.

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

85. N. Patwari, A. O. 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.

86. M.F. Shih and A. O. 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.

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

88. A. O. 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.

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

90. Mark Coates, Alfred 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.

91. H.S. Kim and A. O. 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.

92. O. Michel, A. O. 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.

93. A. O. 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.

94. B. Ma, S. Lakshmanan, and A. O. 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.

95. R. Gupta and A. O. 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.

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

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

98. A. C. Sauve, A. O. 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.
99. 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.
100. A. O. 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.
101. A. O. 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.
102. A. O. 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.
103. I. Sharfer and A. O. 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.
104. A.O. 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.
105. A.-E. Badel, O. Michel, and A.O. Hero, "Comparaison de systèmes et arbres de regression," (In French - English title, "Comparison of systems and regression trees") Traitement du Signal, July 1998.
106. D. Goeckel, A. O. 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.
107. W.J. Williams, E. Zalubas, R. M. Nickel, and A.O. 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.
108. A.O. 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.
109. A. Badel, O. Michel and A. O. Hero, "Arbres de regression: Modélisation 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.
110. A.O. 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.).
111. A.O. 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**)
112. R. Goyal, A.O. Hero and F. Morady, "Simulation of cardiac memory in a computer model using reactive coupling," Journal of Electrocardiology, Vol. 28, pp. 180-183, 1995.
113. J.A. Fessler and A.O. 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.
114. B. Baygün and A.O. 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.

115. A.O. 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.

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

117. N. Petrick, A.O. 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.

118. N. Antoniadis, and A.O. 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.

119. A.O. 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.).

120. 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.

121. 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.

122. N. Petrick, A.O. 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.

123. N. Petrick, A.O. 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.

124. R. Kakarala and A. O. 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.).

125. A.O. 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.

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

127. N.A. Petrick, A.O. 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.

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

129. N.H. Clinthorne, W.L. Rogers, A.O. 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.

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

131. L. Shao, A.O. 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.

132. A.O. 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.
133. A.O. 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.
134. L. Shao, A.O. 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.
135. A.O. 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.
136. N.H. Clinthorne, W.L. Rogers, L. Shao, A.O. 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.
137. A.O. 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.
138. A.O. 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.

3.1.3 Books

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

3.1.4 Refereed Conferences

1. K. Todros and A.O. Hero, "Measure transformed canonical correlation analysis with application to financial data ," IEEE Sensors Arrays and Multichannel (SAM) Workshop 2012. (**Invited**)
2. X. Chen, Z. Syed and A.O. Hero, "EEG spatial decoding with shrinkage regularized directed information assessment," Conf on Acoust., Speech, and Signal Proc. (ICASSP) 2012.
3. T. Tsiligkardis and A.O. Hero, "Sparse covariance estimation under kronecker product structure," Conf on Acoust., Speech, and Signal Proc. (ICASSP) 2012.
4. G. Newstadt and A.O. Hero, "Sensor management and provisioning for multiple target radar tracking systems," Conf on Acoust., Speech, and Signal Proc. (ICASSP) 2012.
5. Z. Meng, A. Wiesel, A.O. Hero, "Distributed principal component analysis on networks via directed graphical models," Conf on Acoust., Speech, and Signal Proc. (ICASSP) 2012.
6. K. Sricharan and AO Hero, "Efficient anomaly detection using bipartite k-NN graphs," Neural Information Processing Systems (NIPS), Grenada Spain, Dec. 2011.
7. 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.
8. 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
9. X. Chen, Yilun Chen and Alfred Hero, "Shrinkage Fisher Information Embedding of High Dimensional Feature Distributions", Asilomar Conference, Pacific Grove, Nov 2011.

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

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

12. C. Bazot, N. Dobigeon, JY Tourneret, A. Hero, "Mod\‘{e}le Bernoulli-Gaussien pour lanalyse g\’{e}n\’{e}tique," GRETSI, Bordeaux 2011.

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

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

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

16. K. Sricharan, A.O. 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.

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

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

19. 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.

20. 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.

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

22. 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.

23. 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.

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

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

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

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

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

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

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

31. K. Xu, M. Kliger, and A. O. 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)

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

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

34. G. Newstadt, E. Zelnio, L. Gorham, and A.O. 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.

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

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

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

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

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

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

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

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

43. P. Harrington, A.O. Hero, "Information Theoretic Adaptive Tracking of Epidemics in Complex Networks," Allerton Conference, Sept. 2009.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

60. A. Rao, A. O. 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)

61. 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.

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

63. 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.

64. K. V. Sitwala, Y. Huang, M. Dandekar, G. Robertson, T. Cezard, M. Bilenky, N. Thiessen, Y. Zhao, T. Zeng, M. Hirst, A.O. 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.

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

66. E. Oubel, C. Tobon, M. De Craene, G. Avegliano, M. Huguet, A. O. 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.

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

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

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

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

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

72. Nicolas Dobigeon, Jean-Yves Tourneret, and Alfred O. 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.

73. K. Herrity, R. Raich and A.O. 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.

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

75. A. Rao, A. O. 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.

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

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

78. K. Herrity, R. Raich and A.O. Hero. "Reconstructing sparse images and partially known blur functions,"Submitted to IEEE Intl Conf on Image Processing (ICIP), 2007.

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

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

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

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

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

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

85. N. Patwari and A. O. 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

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

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

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

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

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

91. A. Rao, A.O. 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.

92. N. Patwari and A.O. 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**)

93. D. Blatt and A.O. 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.

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

95. A. Rao, A.O. 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.

96. D. Zhu and A.O. 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.

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

98. A. Rao, A.O. 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.

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

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

101. M. Ting and A.O. 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.

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

103. C. Kreucher, A. 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.

104. D. Blatt and A. O. Hero, "From weighted classification to policy search," NIPS Dec. 2005.

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

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

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

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

109. P-J Chung, J.F. Böhme, C.F. Mecklenbräucker, "On signal detection using the Benjamini–Hochberg procedure," IEEE Workshop on Statistical Signal Processing (SSP), Bordeaux, July 2005.

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

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

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

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

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

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

116. A. Rao, A.O. 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.

117. D. Zhu and A. O. 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.

118. C. Kreucher, A. 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.

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

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

121. S. Haykin, A. 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**)

122. C. Kreucher and A. 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**)

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

124. D. Zhu and A. O. 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**)

125. D. Zhu and A. O. 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.

126. R. Rangangaran, R. Raich and A. O. 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.

127. A. O. 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**)

128. "D. Blatt and A. O. 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.

129. J. Costa, N. Patwari and A. O. 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.

130. E. Oubel, H. Neemuchwala, A. O. 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.

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

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

133. P.-J. Chung, J.F. Böhme, A.O. Hero, and C.F. Mecklenbräuker, "Signal detection using a multiple hypothesis test," In Proc. Third IEEE Sensor Multichannel Signal Processing Workshop, Barcelona, Spain, July 2004.

134. C. Kreucher, A. 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.

135. C. Kreucher, D. Blatt, A. 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.

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

137. C. Kreucher, A. 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.

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

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

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

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

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

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

144. N. Patwari and A. O. 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**)

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

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

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

148. C.-Y. Yip, A. O. 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**)

149. N. Patwari and A. O. 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.

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

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

152. A. 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**)

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

154. C. Kreucher, K. Castella, and A. O. 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**).

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

156. 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.

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

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

159. C. Kreucher, K. Kastella, and A. 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.

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

161. K. Siddiqui, A. O. 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.

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

163. A. O. 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**).

164. H. Neemuchwala, A. O. 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**).

165. A. 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.

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

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

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

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

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

171. M.-F. Shih and A. O. 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.

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

173. G. Fleury, A. O. 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**)

174. 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**)

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

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

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

178. H. Neemuchwala, A. O. 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.

179. P.L. Carson, J.F. Kruecker, C.R. Meyer, G.L. LeCarpentier, J.B. Fowlkes, M.A. Roubidoux, H. Neemuchwala, and A.O. 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.

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

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

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

183. Shigeo Yoshida, Jindan Yu, Rafal Farjo, Mohammad Othman, Alan Mears, Beverly Yashar, Sean MacNee, Matt Studt, Sujata Sheth, Alfred 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.

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

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

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

187. 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.

188. Alfred 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**)

189. Huzefa Neemuchwala and Alfred 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**)

190. J. Li and A. 0. 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.

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

192. M. Godavarti, A. O. 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.

193. M. Godavarti and A. O. 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.

194. A.-G. Ziotopoulos, A. O. 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.

195. M-F Shih and A. O. 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**).

196. H.S. Kim and A. O. 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.

197. A. O. 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**).

198. A. O. 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.

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

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

201. A. 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.

202. H. S. Kim and A. O. 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**).

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

204. R. Piramuthu and A. 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.

205. T, Kragh, A. 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.

206. W. Stark, H. Wang, A. Worthen, P. Liang, A. 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.

207. B. Ma, A. O. 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.

208. H.S. Kim and A. O. 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.

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

210. A. O. 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.

211. O. Michel, P. Flandrin and A.O. 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.

212. R. Gupta and A. O. 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.

213. A.O. 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.

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

215. S. Hong, R. Gupta, W. E. Stark, A. O. 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.

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

217. A. O. 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.

218. A. O. 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.

219. A. O. Hero, "Parametric Estimation for Granulometry Problems," 2000 Proc. of Int. Union of Radio Sciences (URSI), Boulder CO, Jan. 2000 (**Invited**).

220. R. Gupta and A. O. Hero, "Limitations on Detection and Classification from Compressed Images," 2000 Proc. of Int. Union of Radio Sciences (URSI), Boulder CO, Jan. 2000.

221. A. O. Hero, "On the problem of granulometry for a degraded Boolean image model," Proc. of 1999 IEEE Conf. on Image Processing, Kobe Japan, Oct. 1999.

222. B. Ma, S. Lakshmanan and A. O. Hero, "Road and Lane Edge Detection with Multisensor Fusion Methods," Proc. of 1999 IEEE Conf. on Image Processing, Kobe Japan, Oct. 1999.

223. O. Michel, P. Flandrin, A. Hero, "Détection de structures dans le plan temps fréquence à l'aide de graphes minimaux," GRETSI-99, Vannes France, Sept. 1999.

224. J.D. Gorman, A.O. 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.

225. A.C. Sauve, A.O. 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.

226. A.O. 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.

227. M. Nikolova and A.O. 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.

228. M. Godavarti and A. O. 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.

229. R. Gupta and A. O. 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.

230. A. C. Sauve, A. O. 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.

231. J. H. Kang, W.E. Stark and A.O. Hero, "Turbo codes for fading and burst channels," Proceedings GLOBECOM, Sydney, Australia Oct. 1998.

232. A.O. Hero and R. Gupta, "Power vs. Performance Tradeoffs for Reduced Resolution Adaptive Equalizers," IEEE Conf. on Military Communications (MILCOM), Oct. 1998.

233. R. Piramuthu and A. O. Hero, "Side information averaging method for PML emission tomography," 1998 Intern. Conf. on Image Processing, Chicago, IL, Oct. 1998.

234. M. Nikolova, A. O. 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.

235. R. Gupta and A. O. Hero, "Optimal Bit Allocation for the Quantized LMS Adaptive Algorithm," Proc. of the 1998 IEEE Workshop on Statistical Signal and Array Processing , Sept. 1998.

236. S. Chretien and A.O. Hero,"Acceleration of the EM algorithm via proximal point iterations," Proc. of the 1998 IEEE Intern. Symposium on Inform. Theory, Aug. 1998.

237. A. O. 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.

238. A.O. Hero, "Asymptotic minmax methods for incorporation of uncertain side information into penalized ML image reconstructions," Mathematisches Forschungsinstitut Oberwolfach, Oberwolfach Germany, Jan 1999 (Invited).

239. A.O. Hero, "Robust Entropy Estimation via Pruned Minimal Spanning Trees," Bayesian Signal Processing Workshop, Isaac Newton Institute, Cambridge UK, July. 1998 (Invited).

240. A.O. 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).

241. A. O. 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.

242. A. O. 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.

243. A. O. Hero "Robust pattern recognition via pruning of random graphs," 1998 Proc. of Int. Union of Radio Sciences (URSI), Boulder CO, Jan. 1998.

244. A. O. Hero "Robust automated target recognition under target and clutter uncertainty," 1998 Proc. Int. Union of Radio Sciences (URSI), Boulder CO, Jan. 1998.

245. A. O. 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.

246. A. O. 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.

247. B. Ma, S. Lakshmanan, A. O. 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.

248. A. O. 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**).

249. C.Y. Ng, N.H. Clinthorne, J.A. Fessler, A.O. 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.

250. A. Sauve, A. O. 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.

251. A.O. 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.

252. I. Sharfer and A.O. 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.

253. S.A. Titus, A.O. 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.

254. E.J. Zalubas, J.C. O'Neill, W.J. Williams, and A.O. Hero, "Shift and scale invariant detection," Proceedings of 1997 IEEE Conf. on Acoustics, Speech and Signal Processing (ICASSP), Munich, pp. 3637-3640, April 1997.

255. A.O. 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.

256. W.J. Williams, E, Zalubas, A.O. Hero, "Word spotting in bitmapped documents," Proceedings of 1997 Symposium on Document Image Understanding Technology, Annapolis, MD, pp. 214-227, April 1997 (**Invited**).

257. Chor-yi Ng, N. Clinthorne, J.A. Fessler, M. Usman, A.O. 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.

258. J. O'Neill, A.O. Hero, and W.J. Williams, "Word spotting via spatial point processes," Proceedings of the 1996 IEEE Conference on Image Processing, Laussane, Switzerland.

259. S.R. Titus, A.O. 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.

260. E. Zalubas, W.J. Williams, and A.O. 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.

261. W.L. Rogers, N.H. Clinthorne, J.A. Fessler, Y. Zhang, L. Hua, C. Ng, M. Usman, A.O. Hero, "Value of a vertex view for brain SPECT," Meeting of the Society of Nuclear Medicine, June 1996.

262. B. Baygun and A. O. 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.

263. A.O. 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**).

264. I. Sharfer and A. O. 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.

265. D. L. Goeckel, A. O. 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.

266. R. Goyal, A. O. 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.

267. A. O. 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.

268. A. O. Hero and J. A. Fessler, "Sufficient conditions for norm convergence of the EM algorithm," IEEE Int'l. Symposium on Information Theory, Vancouver, Sept. 1995.

269. A. O. 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**).

270. A-E Badel, O. Michel, and Alfred Hero, "Arbres de régression pour l'analyse des séries chaotiques," Proceedings of GRETSI, Juan-les-Pins, France, Sept. 1995.

271. O. Michel, P. Flandrin and A.O. Hero, "Tree-based modeling, prediction, and analysis of chaotic time series," Proceedings of IEEE Workshop on Non-linear Signal Processing, Halkiditi Greece, June 1995.

272. S. Titus, A. O. 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.

273. I. Sharfer and A. O. 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.

274. O. Michel and A. O. 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.

275. M. Usman, A.O. 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.

276. M. Usman, A.O. 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.

277. A.O. 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**).

278. M. Usman and A.O. 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.

279. M.L. Brown, W.J. Williams and A.O. 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.

280. Y. Zhang, A.O. 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.

281. M. Usman, A.O. 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.

282. J.A. Fessler and A.O. 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.

283. N. Petrick, A.O. 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.

284. J.A. Fessler and A.O. Hero, "Cramer-Rao bounds for biased estimators in image restoration," Proceedings of 36th IEEE Midwest Symposium on Circuits and Systems, Aug. 1993 (**Invited**).

285. M. Usman, A.O. 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**).

286. W.J. Williams, M.L. Brown, A.O. Hero, "Information invariance in time-frequency distributions," Proceeedings of SIAM Meeting, Philadelphia, July 1993 (**Invited**).

287. A.O. 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**).

288. R. Delap and A.O. 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.

289. J.A. Fessler and A.O. 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.

290. A.O. 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**).

291. A.O. 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**).

292. A. O. Hero, "On the convergence of the EM algorithm," IEEE Int'l. Symposium on Information Theory, San Antonio, TX, Jan. 1993.

293. A.O. 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.

294. N. Petrick, A.O. 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.

295. A.O. 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.

296. Y. Zhang, A.O. 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.

297. A.O. Hero, "Optimal estimation of intensity parameters for filtered Poisson processes," 1992 IEEE Information Theory Workshop, Salvadore, Brazil, June 1992 (**Invited**).

298. B. Baygün and A.O. 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.

299. R. Delap and A.O. 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.

300. N. Antoniadis and A.O. 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.

301. A.O. 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**).

302. P. Chiao, W. L. Rogers, A.O. 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.

303. A.O. 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.

304. W.J. Williams, M.L. Brown, A.O. 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**).

305. P. Chiao, W. L. Rogers, A.O. 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.

306. P. Chao, W.L. Rogers, A.O. 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.

307. A.O. Hero, "Intrinsic performance gains using side information," Midwest Workshop on Iterative Image Reconstruction, the University of Chicago, May 1991 (**Invited**).

308. A.O. 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**).

309. R. Kakarala and A.O. 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.

310. B. Baygün and A.O. 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.

311. J.D. Gorman and A.O. 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.

312. L. Shao, A.O. 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.

313. A.O. 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**).

314. N.H. Clinthorne, A.O. 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.

315. N.A. Petrick, N.H. Clinthorne, W.L. Rogers and A.O. Hero, "First photo-electron timing error evaluation of a new scintillation detector model," Proceedings of the IEEE 1990 Nuclear Science Symposium.

316. A.O. 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.

317. B. Baygün and A.O. 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**).

318. L. Shao and A.O. 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.

319. J.K. Kim and A.O. 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.

320. A.O. Hero, "Optical detection," Bangor Communications Symposium,organized by J. O'Reilly, University of Wales, Bangor, UK, May 1989 (**Invited**).

321. A.O. 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**).

322. J. Gorman and A.O. 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**).

323. A.O. 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.

324. A.O. 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.

325. A.O. 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.

326. L.Shao, A.O. 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.

327. N.H. Clinthorne, W.L. Rogers, A.O. 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.

328. A.O. 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**).

329. A.O. 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.

330. A.O. 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.

331. A.O. 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.

332. A.O. 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.

333. A.O. Hero and S.C. Schwartz, "On the asymptotic form of level crossing probabilities," IEEE International Symposium on Information Theory, St. Jovite, Canada, Sept. 1983.

334. A.O. 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.

3.1.5 Book Chapters

1. A. Hero, C. Kreucher and D. Blatt, "Information theoretic approaches to sensor management," Ch. 3 in Foundations and Applications of Sensor Management, A. Hero, D. Casteñón, D. Cochran and K. Kastella (Eds), Springer, 2007
2. R. Rangarajan, R. Raich, and A.O. Hero, "Sparsity penalized MDS for blind tracking in sensor networks," in Networked Sensing, Information and Control, Ed. V. Saligrama, Springer, 2007.
3. A. O. Hero, "Geometric entropy minimization (GEM) for anomaly detection and localization," in Advances in Neural Information Processing Systems (NIPS) 2007.
4. D. Zhu, M. Rabbat, A. O. Hero, R. Nowak, M. Figueiredo, "De Novo signaling pathway reconstruction from multiple data sources," in New research on signal transduction, Ed. F. Columbus , Nova Publishing, 2006.
5. N. Patwari, A. O. 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. .
6. D. Blatt and A. O. Hero, "From weighted classification to policy search," Advances in Neural Information Processing Systems (NIPS), vol 18, pp. 139-146, 2006.
7. J. Costa and A. O. 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.
8. H. Neemwuchwala and A. O. 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.

9. H. Park, P.H Bland, A.O. 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.
10. E. Oubel, C. Tabon-Gomez, A.O. 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.
11. O. Michel, A.O. Hero and A. Ferrari, "Signaux aléatoires: modelisation, estimation, détection," (English title: Random signals: modeling, estimation, detection"), Ed. M. Gugliemi, Hermes, 2004.
12. 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.
13. J. Costa, A. O. 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.
14. D. Blatt and A. 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
15. A.O. Hero, Donald L. Snyder "Parameter Estimation for Multi-dimensional Filtered Poisson Processes," Festschrift – J. O'Sullivan (Ed). Springer-Verlag, To appear 2005.
16. A.O. 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.
17. A.O. Hero, "Telecommunications Media," Encyclopedia Britannica, pp. 493-500, 1997.
18. A.O. 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.
19. A.O. 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.
20. A.O. 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.

3.1.6 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.

3.1.7 Technical Reports:

1. K. Todros and A.O. Hero, "On measure transformed canonical correlation analysis," arXiv:1111.6308, Nov. 2011
2. K.-J. Hsiao, S. Xu, and A.O. Hero, "Multi-criteria anomaly detection using Pareto depth analysis," arXiv:1110.3741, Oct. 2011

3. A.O. Hero and B. Rajaratnam, "Hub discovery in partial correlation graphical models," arXiv:1109.6846, Sept. 2011

4. K. S. Xu, M. Kliger and A.O. Hero, "Adaptive Evolutionary Clustering," arXiv:1104.1990, April. 2011

5. A.O. Hero and B. Rajaratnam, "Large Scale Correlation Screening," arXiv:1102.1204, Feb. 2011

6. Y. Chen and A. O. Hero, "Recursive $\ell_{1,\infty}$ Group lasso ," arXiv:1101.5734, Jan 2011.

7. P. Harrington, A. Zaas, C. W. Woods, G. S. Ginsberg, L. Carin, and A. O. Hero, "Robust logistic regression with bounded data uncertainties," Technical report. Sept. 2010

8. P. Harrington and A. O. Hero, "Spatio-temporal graphical model selection," Apr 14 2010. arXiv:1012.4188v1

9. K. Sricharan, R. Raich, A. O. 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)

10. Y. Chen, Y. Gu and A.O. Hero, "Regularized least-mean-square algorithms," arXiv:1012.5066, Dec 22, 2010

11. P. Harrington and A. O. Hero, "Percolation Thresholds of Updated Posteriors for Tracking Causal Markov Processes in Complex Networks," arXiv:0905.2236v1, May 14 2009.

12. D. Justice and A. O. Hero, "Online Methods for Network Endpoint Localization," CSPL Technical Report 390, Dec 30 2008. Originally submitted to the IEEE Trans on Information Theory, April 2007.

13. N. Dobigeon, A.O. Hero and J.-Y. Tourneret, 'Hierarchical Bayesian sparse image reconstruction with application to MRFM,' arXiv Sept. 2008.

14. A. Wiesel and A.O. Hero, 'Decomposable Principal Components Analysis,' arXiv, Aug, 2008.

15. John A. Sidles, Joseph L. Garbini, Lee E. Harrell, Alfred O. 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

16. R. Raich, J. Costa, S. Damelin and A.O. Hero, "Classification constrained dimensionality reduction," submitted to ArXiv, Feb 20, 2008.

17. A. Wiesel, M.Kliger, A.O. Hero, "A greedy approach to sparse canonical correlation analysis," arXiv:0801.2748v1 [stat.CO], 17 Jan. 2008.

18. A. Rao, A.O Hero, D.J. States, J. D. Engel, "Understanding transcriptional regulation using de-Nove sequence discovery, network inference and interactome data," submitted to arXiv Oct 9 2007.

19. C. Hory and A. O. Hero, "Sequential Probability Ratio Test for the detection of a single electron spin in the OSCAR setup," arXiv mansucript quant-ph/0402181, Feb. 2004.

20. M. Ting, A. O. 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.

21. A.O. 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

22. S. Chretien and A. 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).

23. A.O. 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.

24. A.O. Hero and C. Guillouet, "Maximal Invariant Theory Applied to Robust Detection of SAR/IR Targets," CSPL Technical Report 306, Jan. 1997

25. A. O. Hero, M. Usman, Anne Sauve, and J. A. Fessler, "Recursive algorithms for computing the Cramer-Rao bound," CSPL Technical Report 305, Nov.1996.

26. J.A. Fessler and A.O. 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.

27. A.O. 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.

28. A.O. Hero, "A Cramer-Rao type lower bound for essentially unbiased parameter estimation," Technical Report 890, MIT Lincoln Laboratory, 1992.

29. A.O. 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.

30. J. Gorman and A.O. 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.

31. A.O. 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.

32. L. Shao and A.O. 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.

33. A.O. Hero, "Topics in time delay estimation," Tech. Report 16, Information Sciences and Systems Laboratory, Princeton University, Feb. 1985.

3.2 Patents and disclosures

Patents Awarded

1. A.O. 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.

2. A. Hero, H. Neemuchwala, P. Carson, "Method for determining alignment of images in high dimensional feature space," disclosed to Univ of Michigan Technology Management Office 12/04. Provisional patent 60/658,427 filed Mar 4, 2005. United States Patent 7,653,264. Issued January 26, 2010

3. W.J. Williams, E.J. Zalubas, J.C. O'Neill, R.M. Nickel, and A. Hero, "Method and system for extracting features in a pattern recognition system," United States Patent 6,178,261. Issued. Jan. 23, 2001.

Patent and Software Disclosures

1. A.O. 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 11/09. UM Ref. 4605.

2. G. Ginsberg, A. Zaas, L. Carin, C. Woods, A. O. Hero, "Clinical 'challenge' methods to develop predictors for future symptomatic illness," disclosed to Duke University 03/09. Duke Ref 3229.

3. A. Zaas, L. Carin, A.O. Hero, M. Chen, C. Woods, G. Ginsberg, "Peripheral blood gene expression signatures predict symptomatic respiratory infection," disclosed to Duke University 03/09. Duke Ref 3230.

4. N. Patwari, J. Costa, A. 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 02/06.

5. N. Patwari, A. Hero, A. Pocholsky, P. Felsen. "Network data visualization tool," software disclosed to Univ of Michigan Technology Management Office 01/05.

6. A. Hero and G. Fleury, "Pareto Front Gene Filtering (PFGF) tool," software disclosed to Univ of Michigan Technology Management Office, 08/02.

3.3 Research Grants

Current Research Grants

1. "Muri: Value-Centered Information Theory For Adaptive Learning, Inference, Tracking and Exploitation," (08/01/11-07/31/16) MURI - Army Research Office (ARO). Grant number: W911NF-11-1-0391. PI: A.O. Hero. Collaboration between University of Michigan (Hero, Nadakuditi), Ohio State (Moses, Ertin), MIT (Fisher, How, Willsky), Berkeley (Jordan), and UCLA (Soatto).

2. "Sparse representation of multimodality sensing databases for data mining and retrieval," Army Research Office (ARO). Collaborative effort between UM and CMU. Project PI: A.O. Hero.

3. "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 A. Hero.

4. "Distributed active network sensing and estimation (DANSE)," (1/1/2008-12/31/2012), DIGITEO. PI: A. Hero.

5. "Automatic three dimensional (3D) registration for enhanced cancer management," (04/09/2009-8/31/2014), National Institutes of Health, grant number. PI: C. Meyer.

6. "Learning and Adapting to Spatio-Temporal Anomalies," (9/1/2008-8/31/2011), National Science Foundation. PI: C. Scott. co-PI: A.O Hero.

7. "Network Tomography for Structure Discovery," (6/4/2008-6/5/2009), Office of Naval Research N00014-08-1-1065. PI: A. Hero.

8. "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: A. Hero.

Past Research Grants:

1. "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 A.O. Hero.

2. "Performance-Driven Multimodality Sensor Fusion," (06/01/2009-11/30/2011) Air Force Office of Scientific Research. PI: A.O. Hero. co-PI: R. Raich (Oregon State Univ).

3. "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: A. Hero.

4. "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: A. Hero.

5. "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: A. O. Hero.

6. “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, A. Hero, D. States

7. “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 A. Hero.

8. "ARO Workshop on Research Directions in Information Processing," (05/01/07-04/31/08), Army Research Office. PI A. Hero.

9. “Utility-weighted sensor management for missile defense," Missile Defense Agency (10/01/07-05/31/08), subcontract to TechFinity, Inc. UM PI: A. Hero

10. “Multi-modality Image Registration," National Institutes of Health, P01, 05/01-05/06. P.I.: C. Meyer (UM Radiology).

11. “Sequential adaptive multimodality target detection and classification using physics-based models," ARO-MURI (06/01/05-05/31/07). P.I.: L. Carin (Duke).

12. “Active Sensing Workshop," National Science Foundation CCR0524865 (04/01/05-04/31/06). P.I.: A.O. Hero.

13. “Adaptive detection and classification with entropic measures," DARPA Integrated Sensors Program (Phase II) F012399 (04/01/05-4/31/06). PI: H. Schmitt (Raytheon).

14. “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.: A.O. Hero.

15. “Radionucleides: radiation detection and quantification," National Institutes of Health RO1-CA32846. 6/1/02-5/31/05, $1,000,000. P.I.: N. Clinthorne.

16. “Sequential adaptive multimodality target detection and classification using physics-based models," DARPA-MURI, 07/01-05/05. P.I.: A. Yagle (UM).

17. “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: A. Hero.

18. “Techniques for calculating tumor dosimetry," National Institutes of Health RO1-CA87955-01, 6/1/00-5/30/04. P.I. K. Koral.

19. “Challenges in Pattern Recognition," National Science Foundation CCR 0223741. 03/02-09/02. P.I.: A.O. Hero.

20. “Low-energy electronics design for mobile platforms," Army Research Office DAAH04-96-1-0337. 9/1/96-8/31/01, P.I. W. Stark.

21. “Radionucleides: radiation detection and quantification," National Institutes of Health RO1-CA32846. 3/1/94-2/28/02. P.I.: W.L. Rogers.

22. “Reduced Signature Automated Target Recognition," Air Force Office of Scientific Research F49620-96-0028. 11/1/95-7/30/01. P.I.: A.O. Hero.

23. “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. A.O. Hero.

24. “Robust automatic multimodality registration," National Institutes of Health, 4/1/97-3/31/00. P.I. C. R. Meyer.

25. “Estimation strategies for nuclear medical imaging," National Institutes of Health RO1CA54362, 3/1/95-2/28/00. P.I.: W. L. Rogers.

26. “Space-Frequency Image Processing," National Security Agency MDA904-95-C-2157 , 6/1/95-11/31/96. P.I.: W.J. Williams.

27. “Cellular Network Modeling and Simulation for the Study of Cardiac Function," UM OVPR Research Partnership Award, 5/1/94-4/30/95. P.I.: A.O. Hero.

28. “Optimizing information transfer characteristics of tomographic imaging systems," National Science Foundation, BCS-9024370, 5/1/91 - 4/30/95. PI: A. O. Hero.

29. “Computation of content information and time frequency of biological signals," UM OVPR 1992. P.I.s: W. J. Williams and A. O. Hero.

30. “An integrated environment for image reconstruction and visualization," IBM/CAEN Distributed Computing Initative, 5/20/91. P.I.s: A. O. Hero and D. J. Anderson.

31. “Improving coincidence timing for positron imaging," National Institutes of Health: R01 CA46622-01, 3/1/88 - 9/1/91. P.I.: N.H. Clinthorne.

32. “Engineering research equipment grant: array processing equipment for communications and signal processing research," National Science Foundation. P.I.: W.E. Stark.

33. “Large deviations in delay estimation: models and alternatives," The University of Michigan Rackham School of Graduate Studies, 1/85-9/86. P.I.: A.O. Hero.

4 Education

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, Signal Processing Laboratory.
6. EECS 453, Analog Communications.
7. EECS 501, Probability and Random Processes.
8. EECS 564, Estimation, Filtering and Detection.
9. EECS 559, Advanced Signal Processing.
10. EECS 659, Adaptive Signal Processing.
11. EECS 750, Signal Processing: State of the Art and Unsolved Problems.

4.2 Post-doctoral students

1. Dennis Wei (2011-)
2. Francesca Bassi (2010-2012)
3. Koby Todros (2010-2012)
4. Xu Chen (2010-2011).
5. Roni Mittelman (2009-2011).
6. Ami Weisel (2007-2010). Assistant Professor, Hebrew University, Jerusalem Israel.
7. Nicolas Dobigeon (2007). Assistant Professor, ENSEEIHT, Toulouse France.
8. Mark Kliger, (2006-2007). Research staff, Medasense Biometrics, Israel.
9. Neal Patwari, (2005-2006). Assistant Professor, University of Utah.
10. Raviv Raich, (2004-2007). Assistant Professor, Oregon State University
11. Pei-Jung Chung, (2004). Associate Professor, University of Edinborough, UK.
12. Cyrille Hory, (2003-2004). Research staff, RATP, Paris.
13. Stephane Chretien, (1995-1998). Professor, University of Besancon, France.
14. Olivier Michel, (1993-1994). Professor, INP Grenoble, France.

4.3 PhD students and thesis titles (University of Michigan)

1. Arnau Tibau Puig (arnau.tibau at gmail.com). Thesis (EECS) "Learning from high-dimensional multivariate signals," Dept. EECS, Jan 2012.

2. Yilun Chen. Research Engineer at Eaton Inc. Thesis (EECS) "Regularized Estimation of High-dimensional Covariance Matrices," Dept. of EECS, Mar. 2011.

3. Yongsheng Huang. Research Staff at Amazon. Thesis (Bioinformatics) "Integrative Statistical Learning and Applications in Predicting Features of Diseases and Health," Bioinformatics Program, Jan 2011.

4. Patrick Harrington. Research Staff at Detroit Edison Co. Thesis (Bioinformatics) "Inverse problems in high dimensional stochastic systems under uncertainty," Bioinformatics Program, Aug. 2010.

5. Kevin Carter. Member of Technical Staff at MIT Lincoln Laboratory. Thesis (EECS) "Dimensionality Reduction on Statistical Manifolds," Dept. of EECS, Dec. 2008.

6. Arvind Rao. Lane Fellow at Carnegie Mellon University. Thesis (EECS/Bioinformatics) "Prospective identification of long-range transcriptional regulatory regions via integrative genomics," Bioinformatics Program and Dept. of EECS, July 2008.

7. Eran Bashan. CEO Hygiea Inc. Thesis (EECS) "Efficient resource allocation schemes for search," Dept. EECS, May 2008.

8. Jay Marble. Research Staff US Army NVESD, Fort Belvoir VA. Thesis (EECS) "Advances in surface penetrating technologies for imaging, detection, and classification," Dept. EECS, Dec. 2007.

9. Raghuram Rangarajan. Research Staff at Cisco, San Jose CA. Thesis (EECS) "Resource constrained adaptive sensing," Dept. EECS, Aug 2006.

10. Derek Justice. Research Staff at SAS Institute Inc, Raleigh NC. Thesis (EECS) "Inference methods for message endpoint localization in networks," Dept. EECS, Aug. 2006.

11. Dongxiao Zhu. Assistant Professor at University of New Orleans, LA. Thesis (EECS) "Reconstructing Signaling Pathways from High Throughput Data," Dept. EECS, May 2006.

12. Doron Blatt. Head of Algorithmic Trading at DRW Trading Group, Chicago. Thesis (EECS) "Performance Evaluation and Optimization for Inference Systems: Model Uncertainty, Distributed Implementation, and Active Sensing," Dept. EECS, May 2006.

13. Mike Ting. Staff Engineer at Seagate Technology Minneapolis MN. Thesis (EECS) "Signal Processing for Magnetic Resonance Force Microscopy," Dept. EECS, May 2006.

14. Neal Patwari. Assistant Professor at Univ. of Utah, Salt Lake City, UT. Thesis (EECS) "Location estimation in sensor networks," Dept. EECS, Sept. 2005.

15. Jose Costa. Quantitative Analyst at DRW Trading Group. Thesis (EECS) "Random graphs for structure discovery in high dimensional data," Dept. EECS, Aug. 2005.

16. Chris Kreucher. Senior Systems Engineer at Integrity Applications Incorporated in Ann Arbor, MI. Thesis (EECS) "An information-based approach to sensor resource allocation," Dept. EECS, Feb. 2005.

17. Clyde Shih. Research Scientist at KLA-Tencor Corp, San Jose, CA. Thesis (EECS) "Unicast Internet Tomography," Dept. EECS, Jan. 2005.

18. Huzefa Neemuchwala (hneemuch at umich.edu). at Fujifilm, San Jose CA. Thesis (Biomedical Engineering) "Entropic graphs for image registration," Dept. Biomedical Engineering, Jan. 2005.

19. Tom Kragh. Principal Research Engineer BAE Systems Inc, Thesis (EECS) "Tradeoffs and limitations in statistically based image reconstruction problems," Dept. EECS, Sept. 2002.

20. Jia Li. Associate Professor at Oakland University, MI. PhD Thesis (Biomedical Engineering) "Three dimensional shape modeling: segmentation, reconstruction and registration," Dept. BME, Jan. 2002,

21. Mahesh Godavarti. Senior Director of Research and Development at Ditech Networks. Thesis (EECS) "Antenna arrays in wireless communications," Dept. EECS, July 2001.

22. Riten (Robby) Gupta. Research Staff TRW Inc, Los Angeles. Thesis (EECS) "Quantization Strategies for Low-Power Communications," Dept. EECS, May 2001.

23. Hyungsoo Kim. Research Engineer at Samsung Electronics, Korea. Thesis (EECS) "Adaptive target detection in radar imaging," Dept. EECS, Jan. 2001.

24. Bing Ma. Research Scientist Dept. Radiology, University Of Michigan, Ann Arbor. Thesis (EECS) "Parametric and non-parametric approaches for multisensor data fusion," Dept. EECS, Jan. 2001.

25. Robinson Piramuthu. Sr. Research Engineer at FlashFoto, Inc. Thesis (EECS) "Robust fusion of MRI and ECT data, and acceleration of EM algorithm using proximal point approach," Dept. of EECS, May 2000.

26. Anne Sauve. Research Scientist, Lawrence-Berkeley National Laboratory. PhD Thesis "System modeling, sampling, interprolation and iterative reconstruction for the 3D Compton camera," Dept. of EECS, Jan. 2000.

27. Steven Titus. Research Engineer Accelerant Networks. Thesis (EECS) "Improved penalized likelihood image reconstruction of anatomically correlated emission computed tomography data," Dept. EECS, Oct. 1996.

28. Ilan Sharfer. Research Engineer at Smart Link Inc., Israel. PhD Thesis "Recursive algorithms for digital communications using the discrete wavelet transform," Dept. EECS, Oct. 1996

29. Mohammad Usman. Fellow Scientist at Masimo Corporation, Irvine CA. Thesis (EECS) "Biased and unbiased Cramer-Rao bounds: computational issues and applications," Dept. EECS, Aug. 1994.

30. Ron Delap. AFIT, Dayton OH. PhD Thesis "ADEPT: Task Specific Adaptive Beamforming," Dept. EECS, May 1994.

31. Nick Antoniadis. HITEC, Athens Greece. Thesis (EECS) "Time Delay Estimation for Inhomogeneous Poisson Processes in the Presence of Gaussian Noise," Dept. EECS, Oct. 1992.

32. Bulent Baygun. Head of Interest Rate Strategy US, BNP-Paribas Bank, New York NY. Thesis (EECS) "Optimal Strategies and Tradeoffs for Joint Detection and Estimation," Dept. EECS, Oct. 1992.

33. Nick Petrick. University of Michigan, Ann Arbor. Thesis (EECS) "Optimal Arrival Time Estimators for Electromagnetic Radiation Detectors," Dept. EECS, July 1992.

34. John Gorman. Chief Scientist SET Corporation.Thesis (EECS) "Error Bounds in Constrained Estimation," Dept. EECS, June 1991.

35. Ling Shao. Global NM R&D Engineering Director at Philips Healthcare, CA. Thesis (Bioengineering Program) "Mutual Information Optimization and Evaluation of Single Photon Computed Tomography," Bioengineering Program, Oct. 1989.

36. Joong K. Kim. Professor at Sung Kyun Kwan University, Korea. Thesis (EECS) "Time Delay Estimation with Nuisance Parameters: Performance Approximation and Coarse Acquisition," Dept. EECS, Oct. 1989.

4.4 Major Short Courses

1. "Complexity, Information, and Geometry," Ecole d'é té GRETSI, Peyresque, France, July 2008.

2. "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.

3. "Signal processing for integrative bioinformatics," Tutorial, Workshop on Information Theory and Applications (ITA), Jan 2008.

4. "Statistical signal processing for networks," half day tutorial, Intl Conference on Information, Communications and Signal Processing (ICICS), Dec 2007.

5. "In vitro measurement of gene expression, Part II: Analysis," IEEE Intl Symposium on Biomedical Imaging (ISBI) Tutorial, A.O. Hero, Washington DC, April 15 2004.

6. "Signal detection theory and application," A.O. Hero, five day short course given at EG&G, Inc. , Las Vegas, NV, June 1998.

7. "Methodes d'evaluation de l'erreur minimale atteignable en estimation de paramètres," A. O. Hero, one day short course on Evaluation et Utilisation de Bornes d'Erreur en Estimation Paramètrique, University of Nice, France, Nov.29, 1991.

8. "Aspects of optimal estimation theory," A. O. 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 Leadership Positions

- General Chair, IEEE Workshop on Statistical Signal Processing (SSP), Ann Arbor, 2012.
- Director, IEEE Division IX, 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 Chairman, IEEE International Conference on Accoustics Speech and Signal Processing (ICASSP), 1995.

5.2 Advisory Boards

- Member, Boston University Advisory Board, Dept of ECE, College of Engineering.
- Member, Research Advisory Board, Ecole Superieure d'Electricite (SUPELEC), Paris France.

5.3 Editorial Boards

- Editeur Associé, Traitement du Signal (2008-2010).
- 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 Service to IEEE

- Member, IEEE Awards Board, 2010-2012.
- 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)
- 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

5.5 Conference Organization

- General Chair, IEEE Workshop on Statistical Signal Processing (SSP), 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.

5.6 Government Agencies

National Science Foundation:

- Member, NSF Panel (2011)
- Member, UIUC CISE 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.
- Panelist NSF (1994, 1998, 2001)
- **National Research Council (NRC):**
- Panelist, IED Workshop, National Academy of Sciences, 2008
- Chair, Cross Cutting Robotics Panel (reviews research at Army Research Laboratory (ARL), National Research Council (NRC), 2004.
- Member, Sensors and Electronic Devices (SED) Panel (reviews research at ARL), National Research Council (NRC), 2002-2005.

Other panels

- Co-organizer, ARO Workshop on Sensor information estimation and exploitation, Ann Arbor 2012.
- Member, AFRL Panel on Tomography in Materials Science (2010)
- Panelist, NSF/IARPA/NSA 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).

National Institute of Health (NIH):

Special Study Section member NIH (1992, 1993, 1996, 1997, 1998, 2002, 2004)

5.7 University of Michigan

- Member, Rackham Distinguished Faculty Achievement Award committee
- 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-
- Interim Director, Systems Laboratory, Dept. of EECS 2007-2008
- Area Coordinator, Signal Processing, Dept. of EECS 2005-.
- 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-
- 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-.
- 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.

5.8 Precollege Outreach Activities

- Judge (American Statistical Association judging team), Washtenaw County Science Fair, 2008, 2010, 2011.
- Mentor, NASA SHARP Program, 2004-2005. Hosted two high school students during the summer.

6 Membership in Professional Societies

- The Institute of Electrical and Electronic Engineers (IEEE), Fellow (1998)
- American Association for the Advancement of Science (AAAS), member
- The American Statistical Association (ASA), Member
- The Society for Industrial and Applied Mathematics (SIAM), Member
- The International Union of Radio Science (URSI), Commission C, Member
- Tau Beta Pi, Member