

SCOTT T. ACTON

Contact Information

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Education

Ph.D., Electrical Engineering, The University of Texas at Austin, 1993
M.S., Electrical Engineering, The University of Texas at Austin, 1990
B.S., Electrical Engineering, Virginia Tech, 1988

Broad Interests

Image Processing

Professional Experience

Professor, University of Virginia, 2005-
Walter N. Munster Assoc. Prof. and Faculty Fellow, University of Virginia,
2003-2005
Joint Appointment in Biomedical Engineering, University of Virginia, 2002-
Associate Professor, University of Virginia, Charlottesville, VA, 2000 - 2005
Associate Professor, Oklahoma State University, Stillwater, OK, 1998 - 2000
Asst. Professor, Oklahoma State University, Stillwater, OK, 1994 - 1997
Postdoctoral Fellow, The Center for Space Research, Austin, TX, 1994
Research Asst. (Motorola, Inc. grant), The Laboratory for Vision Systems,
The University of Texas at Austin, Austin, TX, 1990 - 1993
Research and Development Intern, Motorola, Inc., Phoenix, AZ, 1991
Microelectronics and Computer Development Fellow, The University of
Texas at Austin, Austin, TX, 1988 - 1990
Member of the Technical Staff, The MITRE Corp., McLean, VA, 1988
C³I Intern, The MITRE Corp., McLean, VA, 1985 - 1987
Engineering Intern, AT&T Corp., Oakton, VA, 1982 - 1984

Honors and Awards

- Fellow, IEEE. For “contributions to biomedical image analysis,” 2013
- Finalist, Thomas E. Hutchinson Award, 2014 for “contributions to the students of the Engineering School”
- External Advisory Board, Carnegie Mellon University, 2013-2015
- Best Paper Award, 2011 IEEE International Symposium on Biomedical Imaging (with U.Va. student Saurav Basu and Dr. Barry Condron)
- Finalist, State Council of Higher Education Outstanding Faculty Award, 2010
- All University Teaching Award, University of Virginia, 2009
- Plenary Speaker, International Machine Vision and Image Processing Conference, 2008
- Visiting Professor, University of New Mexico, 2007-2008
- UVA’s Unforgettable Lectures, 2007, 2009
- Darden Business Concept Contest Award, 2006
- Walter N. Munster Associate Professorship for Research in Intelligence Enhancement, 2003
- Faculty Fellow of the School of Engineering and Applied Science, 2003
- New Faculty Teaching Award, 2002
- Best Paper Award, IEEE International Conference on Image Processing, 2002 (with U.Va. student Nilanjan Ray)
- Whitaker Biomedical Engineering Research Grant, 2001
- **Outstanding Young Electrical Engineer**, 1996
(National award given by Eta Kappa Nu annually since 1936)
- Halliburton Outstanding Young Faculty Award, 1997
(Corporate-sponsored award for teaching and research excellence)
- Senior Member, IEEE, 1999
- Plenary Speaker, International Conference on Advances in Pattern Recognition and Digital Techniques, ICAPRDT '99, Calcutta, India
- Big 12 Faculty Fellowship, 1998
(Paid expenses for visiting research fellowship)

- Most Influential Professor, OSU Athletics, 1998
- Army Research Office **Young Investigator** Award, 1995
- Motorola Partnerships in Research Award, 1993
- Microelectronics and Computer Development Fellowship, 1988
- Member, Eta Kappa Nu Honorary Society, 1987
- Marshall Hahn Engineering Fellowship, 1985
- Virginia Scholar's Award, 1984

Publications

Books

S.T. Acton and N. Ray, *Biomedical Image Analysis: Tracking*, Morgan and Claypool Publishers, 2006.

S.T. Acton and N. Ray, *Biomedical Image Analysis: Segmentation*, Morgan and Claypool Publishers, 2009.

Book Chapters

A.C. Bovik and S.T. Acton, "Basic linear filtering with application to image enhancement," in the *The Essential Guide to Image Processing*, Academic Press, 2009.

S.T. Acton, "Diffusion partial differential equations for edge detection," in the *The Essential Guide to Image Processing*, Academic Press, 2009.

S.T. Acton, "Diffusion partial differential equations for edge detection," in the *Handbook of Image and Video Processing*, Second Edition, Academic Press, 2005.

A.C. Bovik and S.T. Acton, "Basic linear filtering with application to image enhancement," in the *Handbook of Image and Video Processing*, Second Edition, Academic Press, 2005 (First Edition published in 2000).

M.S. Pattichis, J.P. Havlicek, S.T. Acton, and A.C. Bovik, "Multidimensional AM-FM models with image processing applications," in *Advances in Image Processing and Understanding*, World Scientific Publishing, 2002.

S.T. Acton, "Diffusion-based edge detectors," in the *Handbook of Image and Video Processing*, Academic Press, pp. 433-447, 2000.

S.T. Acton, D. Wei and A.C. Bovik, "Image enhancement," in the *Encyclopedia of Electrical and Electronics Engineering*, J. Webster (Ed.), John Wiley and Sons, New York, 1999.

S.T. Acton and A.C. Bovik, "Order statistics in image processing," in *Handbook of*

Statistics Volume 17: Order Statistics and Their Applications, N. Balakrishnan and C.R. Rao (Eds.), Elsevier Science, New York, pp. 603-641, 1998.

A.C. Bovik and S.T. Acton, "The impact of order statistics on signal processing," in *Statistical Theory and Applications*, H.N. Nagaraja, P.K. Sen, and D.F. Morrison (Eds.), New York, Springer-Verlag, pp. 153-176, 1996.

Refereed Journals

- A. Vaccari, M. Stuecheli, E. Hoppe, B.S. Bruckno and S.T. Acton, "Detection of geophysical features in InSAR point cloud data sets using spatiotemporal models," accepted for publication, *International Journal of Remote Sensing*, 2013.
- S. Basu, B. Condron, A. Aksel, S.T. Acton, "Segmentation and Tracing of Single Neurons from 3D Confocal Microscope Images," *IEEE Journal of Biomedical and Health Informatics*, vol. 17, pp. 319-335 2013.
- A.L. Shada, L.T. Dengel, G.R. Petroni, M.E. Smolkin, S.T. Acton and C.L. Slingluff, Jr., "Infrared thermography of cutaneous melanoma metastases," *Journal of Surgical Research*, in press, 2013.
- E.K. Koltsova, Z. Garcia, G. Chodaczek, M. Landau, S. McArdle, S. Scott, S. Von Vietinghoff, E. Galkina, Y. Miller, S.T. Acton and K. Ley, "Dynamic T cell-APC interactions sustain chronic inflammation in atherosclerosis," *Journal of Clinical Investigation*, vol. 122, pp. 3114-26, 2012.
- M.A. Goodrum, M. Trotter, K. Skadron, A. Aksel and S.T. Acton, "Parallelization of particle filter algorithms," *Computer Architecture, Lecture Notes in Computer Science*, vol. 6161, pp. 139-149, 2012.
- G.T. Bass, K. Ryall, A. Katikapalli, B.E. Taylor, S.T. Dang, S.T. Acton and J.J. Saucerman, "Automated image analysis identifies signaling pathways regulating distinct signatures of cardiac myocyte hypertrophy," *Journal of Molecular and Cellular Cardiology*, vol. 50, pp. 923-930, 2012.
- X. Liu, Z. Lin and S.T. Acton, "A grid-based Bayesian approach to robust visual tracking," *Digital Signal Processing*, vol. 22, pp. 54-65, 2012.
- R.L. Janiczek, C.H. Meyer, S.T. Acton, B.R. Blackman and F.H. Epstein, "Three-dimensional phase contrast angiography of the mouse aortic arch using spiral MRI," *Magnetic Resonance in Medicine*, vol. 66, pp. 1382-1390, 2011.
- P. Tay, S.T. Acton, and J.A. Hossack, "A wavelet thresholding method to reduce ultrasound artifacts," *Computerized Medical Imaging and Graphics*, vol. 35, pp. 42-50, 2011.
- K.R. Prasad, Y. Xu, Z. Yang, S.T. Acton and B.A. French, "Robust cardiomyocyte-

specific gene expression following systemic injection of AAV: in vivo gene delivery follows a Poisson distribution,” *Gene Therapy*, vol. 18, pp. 43-52, 2010.

P. Tay, C.D. Garson, S.T. Acton and J.A. Hossack, “Ultrasound despeckling for contrast enhancement,” *IEEE Transactions on Image Processing*, vol. 19, pp. 1847-1860, 2010.

P. Tay, J.P. Havlicek, S.T. Acton, and J.A. Hossack, “Properties of the magnitude terms of orthogonal scaling functions,” *Digital Signal Processing*, vol. 20, pp. 1330-1340, 2010.

E.L. McGarvey, M. Leon-Verdin, L. Baum, K. Bloomfield, D.R. Brenin, C. Koopman, S.T. Acton, B. Clark, E.B. Parker, Jr., “An Evaluation of a Computer Imaging Program to Prepare Women for Chemotherapy-related Alopecia,” *PsychoOncology*, DOI 10.1002, 2010.

A.D. Gilliam, F.H. Epstein and S.T. Acton, “Cardiac motion recovery via active trajectory field models,” *IEEE Transactions on Information Technology in Biomedicine*, vol. 13, pp. 226-235, 2009.

P. Tay, B. Li, C.D. Garson, S.T. Acton and J.A. Hossack, “Left ventricle segmentation using model fitting and active surfaces,” *Journal of Signal Processing Systems*, vol. 55, pp. 139-156, 2009.

B. Li and S.T. Acton, “Automatic active model initialization via Poisson inverse gradient,” *IEEE Transactions on Image Processing*, vol. 17, pp. 1406-1420, 2008.

J. Cui, N. Ray, S.T. Acton and Z. Lin, “An affine invariance approach to cell tracking,” *Computerized Medical Imaging and Graphics*, vol. 32, pp. 554-565, 2008.

C.D. Garson, S.T. Acton and J.A. Hossack, “Guiding automated left ventricular chamber segmentation in cardiac imaging using the concept of conserved myocardial volume,” *Computerized Medical Imaging and Graphics*, vol. 32: 321-330, 2008.

A. Aksel, J.A. Hossack and S.T. Acton, “ACU-SEG: Automated cardiac ultrasound image segmentation and tracking,” *CSI Communications*, vol. 32, pp. 11-16, 2008.

B. Li and S.T. Acton, “Active contour external force using vector field convolution for image segmentation,” *IEEE Transactions on Image Processing*, vol. 16, pp. 2096-2097, 2007.

D.P. Mukherjee and S.T. Acton, "Affine and projective active contour models," *Pattern*

Recognition, vol. 40, pp. 920-930, 2007.

G. Dong and S.T. Acton, "Detection of rolling leukocytes by marked point processes," *Journal of Electronic Imaging*, vol. 16, no. 3, #033013, 2007.

M.S. Grant, S.T. Acton, S.J. Katzberg, "Terrain-moisture classification using GPS surface-reflected signals," *IEEE Geoscience and Remote Sensing Letters*, vol. 4, pp. 41-45, 2007.

G. Dong and S.T. Acton, "On the convergence of bilateral filter for edge-preserving image smoothing," *IEEE Signal Processing Letters*, vol. 14, pp. 617-620, 2007.

S. Millington, B. Li, J. Tang, S. Trattnig, J.R. Crandall, S.R. Hurwitz, S.T. Acton, "Quantitative and topographical evaluation of ankle articular cartilage using high resolution MRI," *Journal of Orthopaedic Research*, vol. 25, pp. 143-151, 2007.

M. Sperandio, J. Pickard, S. Unnikrishnan, S.T. Acton and K. Ley, "Analysis of leukocyte rolling *in vivo* and *in vitro*," *Methods in Enzymology*, vol. 416, pp. 346-371, 2006.

A.L. Klibanov, J.J. Rychak, W.C. Yang, B. Li, S.T. Acton, J.R. Lindner, K. Ley and S. Kaul, "Targeted ultrasound contrast agent for molecular imaging of inflammation in high-shear flow," *Contrast Media and Molecular Imaging*, vol. 1, pp. 259-266, 2006.

J.J. Rychak, B. Li, S.T. Acton, A. Leppanen, R.D. Cummings, K. Ley, A.L. Klibanov, "Selectin ligands promote ultrasound contrast agent adhesion under shear flow," *Molecular Pharmaceuticals*, vol. 3, pp. 516-524, 2006.

J. Cui, S.T. Acton and Z. Lin, "A Monte Carlo approach to rolling leukocyte tracking *in vivo*," *Medical Image Analysis*, vol. 10, pp. 598-610, 2006.

S.R. Avula, J. Tang and S.T. Acton, "An object based image retrieval system for digital libraries," *Multimedia Systems Journal*, vol. 11, pp. 260-270, 2006.

J. Tang, S. Millington, J.R. Crandall, S.R. Hurwitz and S.T. Acton, "Surface extraction and thickness measurement of the articular cartilage from MR images using directional gradient vector flow snakes," *IEEE Transactions on Biomedical Engineering*, vol. 53, pp. 896-907, 2006.

S.T. Acton, F. Kishino, R. Nakatsu, J. Tang and M. Rauterberg, "Guest editorial: introduction to multimedia system technologies for educational tools," *Multimedia*

Systems Journal, vol. 11, pp. 201-202, 2006.

N. Ray and S.T. Acton, "Inclusion filters: a class of self-dual connected operators," *IEEE Transactions on Image Processing*, vol. 14, pp. 1736-1746, 2005.

S. Millington, J. Tang, S.T. Acton, S. Hurwitz and J. Crandall, "Quantitative MRI of ankle articular cartilage," *J. Bone Joint Surg. Br.*, vol. 87, pg. 372, 2005.

G. Dong, N. Ray and S.T. Acton, "Intravital leukocyte detection using the gradient inverse coefficient of variation," *IEEE Transactions on Medical Imaging*, vol. 24, pp. 910-924, 2005.

N. Ray and S.T. Acton, "Data acceptance of automated leukocyte tracking through segmentation of spatiotemporal images," *IEEE Transactions on Biomedical Engineering*, vol. 52, pp. 1702-1712, 2005.

S.T. Acton, "Snakes for tracking via generalized deterministic annealing," *Journal of Electronic Imaging*, vol. 14, 023017, pp. 1-13, 2005.

A.K. Chattopadhyay, N. Ray and S.T. Acton, "Universality in the merging dynamics of parametric active contours: a study in MRI based lung segmentation," *New Journal of Physics*, vol. 7, pp. 148-159, 2005.

A.P. Goobic, J. Tang and S.T. Acton, "Image stabilization and registration for tracking cells in the microvasculature," *IEEE Transactions on Biomedical Engineering*, vol. 52, pp. 287-289, 2005.

Q. Sun, J. Hossack, J. Tang and S.T. Acton, "Speckle reducing anisotropic diffusion for 3-D ultrasound images," *Computerized Medical Imaging and Graphics*, vol. 8, pp. 461-470, 2004.

N. Ray and S.T. Acton, "Motion gradient vector flow: an external force for tracking rolling leukocytes with shape and size constrained active contours," *IEEE Transactions on Medical Imaging*, vol. 23, pp. 1466-1478, 2004.

Y. Yu, J. Molloy and S.T. Acton, "Segmentation of the prostate from suprapubic ultrasound images," *Medical Physics*, vol. 31, pp. 3474-3484, 2004.

J. Dunne, A.P. Goobic, S.T. Acton and K. Ley, "A novel method to analyze leukocyte rolling behavior *in vivo* in the mouse cremaster muscle using intravital microscopy,"

Biological Procedures, vol. 6, 182-189, 2004.

- Y. Yu and S.T. Acton, "Edge detection in ultrasound imagery using the instantaneous coefficient of variation," *IEEE Transactions on Image Processing*, vol. 13, pp. 1640-1655, 2004.
- J. Tang and S.T. Acton, "Vessel boundary tracking for intravital microscopy via multi-level gradient vector flow snakes," *IEEE Transactions on Biomedical Engineering*, vol. 51, pp. 316-324, 2004.
- S. Jeyamkondan, N. Ray, G.A. Kranzler, and S.T. Acton, "Computer vision segmentation of the *longissimus dorsi* for beef quality grading," *Transactions of the ASAE*, vol. 47, pp. 1261-1268, 2004.
- M.E. Welser and S.T. Acton, "Projection model snakes for tracking using a Monte Carlo approach," *Journal of Electronic Imaging*, vol. 13, pp. 384-398, 2004.
- D.P. Mukherjee, S. Maitra, and S.T. Acton, "Spatial domain digital watermarking of multimedia objects for buyer authentication," *IEEE Transactions on Multimedia*, vol. 6, pp. 1-15, 2004.
- J. Tang, S.R. Avula and S.T. Acton, "DIRECT: A decentralized image retrieval system for National STEM Digital Library," *Information Technology and Libraries*, vol. 23, pp. 9-15, 2004.
- K. Weber and S.T. Acton, "On connected filters in color image processing," *Journal of Electronic Imaging*, vol. 13, no. 7, 2004.
- A.-R. Mansouri, D.P. Mukherjee and S.T. Acton, "Constraining active contour evolution via Lie groups of transformation," *IEEE Transactions on Image Processing*, vol. 13, pp. 853-863, 2004.
- D.P. Mukherjee, N. Ray, and S.T. Acton, "Level set analysis for cell detection and tracking," *IEEE Transactions on Image Processing*, vol. 13, 562-572, 2004.
- Y. Yu and S.T. Acton, "Automated delineation of coastline from polarimetric SAR imagery," *International Journal of Remote Sensing*, vol. 25, pp. 3423-3438, 2004.
- N. Ray, S.T. Acton, T. Altes, E.E. de Lange, and J.R. Brookeman, "Merging parametric active contours within homogeneous image regions for MRI based lung

- segmentation," *IEEE Transactions on Medical Imaging*, vol. 22, pp. 189-199, 2003.
- J.H. Bosworth and S.T. Acton, "Morphological scale-space in image processing," *Digital Signal Processing*, vol. 13, pp. 338-367, 2003.
- J. Tang and S.T. Acton, "Locating human faces in a complex background including non-face skin colors," *Journal of Electronic Imaging*, vol. 12, pp. 423-430, 2003.
- J.H. Bosworth, T. Koshimizu and S.T. Acton, "Multi-resolution segmentation of soil moisture imagery by watershed pyramids with region merging," *Int. Journal of Remote Sensing*, vol. 24, pp. 741-760, 2003.
- J. Tang, E. Peli, and S.T. Acton, "Image enhancement using a contrast measure in the compressed domain," *IEEE Signal Processing Letters*, vol. 10, pp. 289-292, 2003.
- N. Ray, S.T. Acton, and K. Ley, "Tracking leukocytes *in vivo* with shape and size constrained active contours," *IEEE Transactions on Medical Imaging*, vol. 21, pp. 1222-1235, 2002 (Special issue on *Image Analysis in Drug Discovery and Clinical Trials*).
- Y. Yu and S.T. Acton, "Speckle reducing anisotropic diffusion," *IEEE Transactions on Image Processing*, vol. 11, pp. 1260-1270, 2002.
- D.P. Mukherjee and S.T. Acton, "Cloud tracking by scale space classification," *IEEE Transactions on Geoscience and Remote Sensing*, vol. 40, pp. 405-415, 2002.
- S.T. Acton, K. Wethmar, and K. Ley, "Automatic tracking of leukocytes *in vivo*," *Microvascular Research*, vol. 63, pp. 139-148, 2002.
- S.T. Acton, D.P. Mukherjee, J.P. Havlicek, and A.C. Bovik, "Oriented texture completion by AM-FM reaction-diffusion," *IEEE Transactions on Image Processing*, vol. 10, pp. 885-896, 2001.
- S.T. Acton, "Fast algorithms for area morphology," *Digital Signal Processing*, vol. 11, pp. 187-203, 2001.
- S.T. Acton, "Locally monotonic diffusion," *IEEE Transactions on Signal Processing*, vol. 48, pp. 1379-1389, 2000.
- S.T. Acton and D.P. Mukherjee, "Area operators for edge detection," *Pattern Recognition*

Letters, vol. 21, pp. 771-777, 2000.

S.T. Acton and D.P. Mukherjee, "Scale space classification using area morphology," *IEEE Transactions on Image Processing*, vol. 9, pp. 623-635, 2000.

S.T. Acton and A.C. Bovik, "Segmentation by locally monotonic reduction," *Journal of Applied Signal Processing*, vol. 6, pp. 42-54, 1999.

S.T. Acton and A.C. Bovik, "Piecewise and local image models for regularized image restoration using cross validation," *IEEE Transactions on Image Processing*, vol. 8, pp. 652-665, 1999.

C.A. Segall, W. Chen, and S.T. Acton, "Video tracking using morphological pyramids," *Journal of Electronic Imaging*, vol. 8, pp. 176-184, April, 1999. Reprinted in *Selected SPIE Papers: Mathematical Imaging and Vision*, G. Ritter (Ed.), Bellingham, WA, 1999.

S.T. Acton and A.C. Bovik, "Nonlinear image estimation using piecewise and local image models," *IEEE Trans. on Image Processing*, vol. 7, pp. 979-991, 1998.

S.T. Acton, "Multigrid anisotropic diffusion," *IEEE Transactions on Image Processing*, vol. 7, pp. 280-291, 1998.

S.T. Acton, "On fuzzy nonlinear regression for image enhancement," *Journal of Mathematical Imaging and Vision*, vol. 8, pp. 239-253, 1998.

S.T. Acton, "Image restoration using generalized deterministic annealing," *Digital Signal Processing*, vol. 7, pp. 94-104, 1997.

S.T. Acton and J. Landis, "Multispectral anisotropic diffusion," *Int. Journal of Remote Sensing*, vol. 18, pp. 2877-2886, 1997.

S.T. Acton and A.C. Bovik, "Generalized deterministic annealing," *IEEE Trans. on Neural Networks*, vol. 7, pp. 686-699, 1996.

S.T. Acton, "On unsupervised segmentation of remotely sensed imagery using nonlinear regression," *Int. Journal of Remote Sensing*, vol. 17, pp. 1407-1415, 1996.

J.H. Langlois, L.A. Roggman, L. Musselman and S.T. Acton, "A picture is worth a thousand words: reply to 'On the difficulty of averaging faces,'" *Psychological*

Science, vol. 2, pp. 354-357, 1991.

S.T. Acton and A.C. Bovik, "Feature classification techniques in model-based object recognition," *Int. Journal of Imaging Systems and Technologies*, vol. 2, pp. 329-344, 1990.

Conference Proceedings (Refereed)

D.P. Mukherjee and S.T. Acton, "Segmentation of ultrasound images for phlebotomy applications," *Proc. of the IEEE Int. Conf. on Acoustics, Speech and Signal Processing*, Florence, Italy, May 5-9, 2014.

S.T. Acton, "Speckle reducing diffusion for ultrasound image enhancement using the structural similarity image measure," *IEEE International Workshop on Computational Advances in Multi-Sensor Adaptive Processing*, St. Martin, December 15-18, 2013.

E. Hoppe, B.S. Bruckno, E. Campbell, S.T. Acton, A. Vaccari, M. Stuecheli, A. Bohane, G. Falorni and J. Morgan, "Interferometric Synthetic Aperture Radar Applications At The Virginia Department Of Transportation," submitted to TRB 2014, Washington, D.C., January 2014.

E. Hoppe, B. Bruckno, A. Vaccari and S.T. Acton, "Transportation infrastructure monitoring using satellite remote sensing," *5th Transport Research Arena TRA2014*, Paris, April 24-27, 2014.

R. Sarkar, S. Mukherjee and S.T. Acton, "Shape descriptors based on compressed sensing with application to neuron matching," accepted for publication, *Asilomar Conference on Signals, Systems and Computers*, Pacific Grove, CA, November 4-7, 2013.

S. Mukherjee and S.T. Acton, "Vector field convolution medialness applied to neuron tracing," *IEEE International Conference on Image Processing*, Melbourne, Australia, September 15-18, 2013.

B.S. Bruckno, A. Vaccari, M. Stuecheli, W. Niemann, E. Hoppe, E. Campbell and S.T. Acton, "Validation of interferometric synthetic aperture radar as a tool for identification of geohazards and at-risk transportation infrastructure. In *Proceedings of the 64th Highway Geology Symposium*, North Conway, New Hampshire, Sept. 9-12, 2013.

- S. Mukherjee, S. Basu, B. Condrón and S.T. Acton, "Tree2Tree2: neuron tracing in 3D," *Proc. IEEE International Symposium of Biomedical Imaging*, San Francisco, April 7-11, 2013.
- A. Vaccari, M. Stuecheli, B. Bruckno and S.T. Acton, "Monitoring the Transportation Infrastructure with Satellite-Based Interferometric Synthetic Aperture Radar (InSAR)," *Geohazards 2013*, Harrisonburg, Virginia, July 30-August 1, 2013.
- N. Ray, S.T. Acton and H. Zhang, "Seeing through clutter: snake computation with dynamic programming for particle segmentation," *International Conference on Pattern Recognition*, Tsukuba, Japan, November 11-15, 2012.
- E. Denloye-Ito and S.T. Acton, "Phase congruency singular value decomposition for multi-scale neuron enhancement," *Asilomar Conference on Signals, Systems and Computers*, Pacific Grove, CA, November 4-7, 2012.
- S.T. Acton, "Trackability," *IEEE International Conference on Image Processing*, Orlando, September 30-October 3, 2012.
- C. Yang and S.T. Acton, "External forces for active contours via multi-scale vector field convolution," *IEEE International Conference on Image Processing*, Orlando, September 30-October 3, 2012.
- S. Mukherjee, S. Basu, B. Condrón, S.T. Acton, "A geometrical-statistical approach toward neuron matching," *Proc. IEEE International Symposium of Biomedical Imaging*, Barcelona, April 30-May 4, 2012.
- M. Stuecheli, A. Vaccari and S.T. Acton, "Graph cut segmentation of sparsely sampled images with application to InSAR-measured changes in elevation," *Proc. IEEE SW Symposium on Image Analysis and Interpretation*, Santa Fe, NM, USA, April 22-25, 2012.
- S. Basu, B. Condrón, S.T. Acton, "Path2Path: hierarchical path-based analysis for neuron matching," *Proc. IEEE International Symposium of Biomedical Imaging*, Chicago, March 30-April 2, 2011. **(Best Paper Award)**
- M.A. Goodrum, M. Trotter, K. Skadron, A. Aksel and S.T. Acton, "Parallelization of particle filter algorithms," *IEEE Workshop on Emerging Applications and Many-core Architecture*, Saint-Malo, France, June 20, 2010.

- S. Basu, and S.T. Acton, "Symmetry constrained shape evolution in shape manifolds for shape based retrieval," *Proc. IEEE International Conference on Image Processing*, Hong Kong, China, September 26-29, 2010.
- A. Aksel and S.T. Acton, "Target tracking using the snake particle filter," *Proc. IEEE SW Symposium on Image Analysis and Interpretation*, Austin, Texas, May 23-25, 2010.
- S. Basu, A. Aksel, B. Condron, S.T. Acton, "Tree2tree: neuron segmentation for generation of neuronal morphology," *Proc. IEEE International Symposium of Biomedical Imaging*, April 14-17, 2010.
- M. Landau, E. Koltsova, K. Ley and S.T. Acton, "Multi-cell 3D tracking with adaptive acceptance gates," *Proc. IEEE SW Symposium on Image Analysis and Interpretation*, Austin, Texas, May 23-25, 2010.
- S. Basu and S.T. Acton, "Object segmentation by traversing a pose-shape manifold," *Proc. of IEEE International Conference on Image Processing*, Cairo, Egypt, November 7-11, 2009.
- S.T. Acton, C. Yang, J.A. Hossack and B.R. Wamhoff, "Poisson inverse gradient approach to vascular myocyte detection and segmentation," *Proc. IEEE International Symposium of Biomedical Imaging*, Boston, Massachusetts, June 28 – July 1, 2009.
- M. Boyer, D. Tarjan, S.T. Acton and K. Skadron, "Accelerating leukocyte tracking using CUDA: a case study in leveraging manycore coprocessors," *IEEE Int. Parallel and Distributed Processing Symposium*, Rome, May 2009.
- S.T. Acton and A. Rossi, "Matching and retrieval of tattoo images: active contour CBIR and glocal image features," *Proc. IEEE Southwest Symposium on Image Analysis and Interpretation*, Santa Fe, New Mexico, March 24-26, 2008.
- S.T. Acton, A.D. Gilliam, B. Li and A. Rossi, "Content based image retrieval for matching images of improvised explosive devices in which snake initialization is viewed as an inverse problem," *Proc. SPIE Electronic Imaging*, January 28-29, 2008.
- R.L. Janiczek, F.H. Epstein and S.T. Acton, "Velocity guided segmentation of phase contrast magnetic resonance angiography," *Proc. IEEE Int. Conf. on Image Processing*, San Diego, California, September, 2008.
- A.D. Gilliam, J.A. Hossack, F.H. Epstein, B.A. French and S.T. Acton, "Automated

- magnetic resonance assisted echocardiographic motion analysis,” *Proc. IEEE Int. Conf. on Image Processing*, San Diego, California, September, 2008.
- C. Garson, J.A. Hossack, B. Li and S.T. Acton, “Guided automatic segmentation of murine left ventricle using conservation of myocardial volume,” *Proc. IEEE Int. Ultrasonics Symposium*, New York, New York, October 23-26, 2007.
- Y. Li, C. Garson, Y. Xu, S.T. Acton, B. French, J.A. Hossack, “Quantification of cardiac dyssynchrony in mice after myocardial infarction using high resolution ultrasound,” *Proc. IEEE International Symposium of Biomedical Imaging*, Arlington, Virginia, April 12-15, 2007.
- A.D. Gilliam and S.T. Acton, “Echocardiographic simulation for validation of automated segmentation algorithms,” *Proc. IEEE Int. Conf. on Image Processing*, San Antonio, Texas, September 16-19, 2007.
- S. Basu, D.P. Mukherjee and S.T. Acton, “Implicit evolution of open-ended curves,” *Proc. IEEE Int. Conf. on Image Processing*, San Antonio, Texas, September 16-19, 2007.
- B. Li, A.V. Patil, J.A. Hossack and S.T. Acton, “3D Segmentation of the prostate via Poisson inverse gradient initialization,” *Proc. IEEE Int. Conf. on Image Processing*, San Antonio, Texas, September 16-19, 2007.
- P. Tay, B. Li, C.D. Garson, S.T. Acton and J.A. Hossack, “Multidimensional segmentation of a mouse left ventricle,” *Proc. IEEE Ultrasonics Symposium*, Vancouver, British Columbia, October 2-6, 2006.
- J. Cui, S.T. Acton and Z. Lin, “Particle filter tracking of multiple leukocytes *in vivo*,” *Asilomar Conf. on Signals, Systems and Computers*, Pacific Grove, California, October 29 - November 1, 2006.
- B. Li, S.A. Millington, D.D. Anderson and S.T. Acton, “Registration of surfaces to 3D images using rigid body surfaces,” *Asilomar Conf. on Signals, Systems and Computers*, Pacific Grove, California, October 29 - November 1, 2006.
- A.D. Gilliam, J.A. Hossack and S.T. Acton, “Freehand 3D ultrasound volume reconstruction via sub-pixel phase correlation,” *Proc. IEEE Int. Conf. on Image Processing*, Atlanta, Georgia, October 8-11, 2006.

- B. Li and S.T Acton, "Vector field convolution for image segmentation using snakes," *Proc. IEEE Int. Conf. on Image Processing*, Atlanta, Georgia, October 8-11, 2006.
- A. Aksel, R.L. Janiczek, J.A. Hossack and S.T Acton, "Ultrasound myocardial tracking with speckle reducing anisotropic diffusion assisted initialization," *Proc. IEEE Int. Conf. on Image Processing*, Atlanta, Georgia, October 8-11, 2006.
- P. Tay, S.T Acton and J.A. Hossack, "Ultrasound despeckling using an adaptive window stochastic approach," *Proc. IEEE Int. Conf. on Image Processing*, Atlanta, Georgia, October 8-11, 2006.
- B. Li and S.T. Acton, "Feature weighted active contours", *Proc. IEEE Southwest Symposium on Image Analysis and Interpretation*, Denver, Colorado, March 26-28, 2006.
- J. Cui, N. Ray, S.T. Acton, and Z. Lin, "Application of the affine invariant transform model to cell tracking", *Proc. IEEE Southwest Symposium on Image Analysis and Interpretation*, Denver, Colorado, March 26-28, 2006.
- P. Tay, S.T. Acton and J. Hossack, "A transform method to remove ultrasound artifacts", *Proc. IEEE Southwest Symposium on Image Analysis and Interpretation*, Denver, Colorado, March 26-28, 2006.
- S. Sahoo, N. Ray and S.T. Acton, "Rolling leukocyte detection based on teardrop shape and the gradient inverse coefficient of variation," *Proc. Int. Conf. on Medical Information Visualization*, pp. 29-33, 2006.
- P. Tay, S.T. Acton and J. Hossack, "A stochastic approach to ultrasound despeckling," *Proc. IEEE Int. Symp. On Biomedical Imaging*, Arlington, Virginia, April 6-9, 2006.
- R.L. Janiczek, A.D. Gilliam, P. Antkowiak, S.T. Acton and F.H. Epstein, "Automated affine registration of first pass magnetic images," *Asilomar Conf. on Signals, Systems and Computers*, Pacific Grove, California, October 30 - November 2, 2005.
- B. Li, P. Tay and S.T. Acton, "Multi-assignment interacting multiple model for tracking microbubbles," *Asilomar Conf. on Signals, Systems and Computers*, Pacific Grove, California, October 30 - November 2, 2005.
- G. Dong and S.T Acton, "Object identification by marked point process," *Asilomar Conf. on Signals, Systems and Computers*, Pacific Grove, California, October 30 -

November 2, 2005.

- J. Pickard, J. Hossack and S.T. Acton, "The effect of initialization and registration on the active shape segmentation of the myocardium in contrast enhanced ultrasound," *Proc. 2005 IEEE International Ultrasonics Symposium*, Rotterdam, The Netherlands, September 18-21, 2005.
- S.T. Acton, "Deconvolutional speckle reducing anisotropic diffusion," *Proc. IEEE Int. Conf. on Image Processing*, Genoa, Italy, September 11-14, 2005.
- N. Ray, G. Dong and S.T. Acton, "Tracking multiple cells by correspondence resolution in a sequential Bayesian framework," *Proc. IEEE Int. Conf. on Image Processing*, Genoa, Italy, September 11-14, 2005.
- R.L. Janiczek, N. Ray, B. French, F. Epstein and S.T. Acton, "Markov chain Monte Carlo method for tracking myocardial borders" *SPIE Computational Imaging III*, San Jose, California, January 17-18, 2005.
- N. Ray and S.T. Acton, "Spatiotemporal segmentation for validation of rolling leukocyte tracking data," *IEEE Conf. on Acoustics, Speech, and Signal Processing*, Philadelphia, Pennsylvania, March 19-23, 2005.
- R.L. Janiczek, J. Tang and S.T. Acton, "Incorporating variance within binary flow for leukocyte tracking," *Asilomar Conf. on Signals, Systems and Computers*, Pacific Grove, California, November 7-10, 2004.
- G. Dong, N. Ray and S.T. Acton, "Automated leukocyte detection *in vivo*," *Asilomar Conf. on Signals, Systems and Computers*, Pacific Grove, California, November 7-10, 2004.
- J. Pickard, R.L. Janiczek, S.T. Acton, J. Sklenar, J. Hossack and S. Kaul, "Segmentation of the myocardium from myocardial contrast echocardiography," *Asilomar Conf. on Signals, Systems and Computers*, Pacific Grove, California, November 7-10, 2004.
- G. Dong, E. Damiano, M.L. Smith, K. Ley and S.T. Acton, "Detection of microspheres in venules for automated particle image velocimetry," *IEEE Symposium on Computer Based Medical Systems*, Bethesda, Maryland, June 24-25, 2004.
- J. Tang, S. Millington, S.T. Acton, J. Crandall and S. Hurwitz, "Ankle cartilage surface tracking using directional gradient vector flow snakes," *IEEE Int. Conf. on Image Processing*, Singapore, October 24-27, 2004.

- Y. Yu, S.T. Acton and J. Molloy, "Generalized speckle reducing anisotropic diffusion for ultrasound imagery," *IEEE Symposium on Computer Based Medical Systems*, Bethesda, Maryland, June 24-25, 2004.
- J. Tang and S.T. Acton, "A DCT based gradient vector flow snake for image segmentation", *Proc. IEEE Southwest Symposium on Image Analysis and Interpretation*, Lake Tahoe, Nevada, March 28-30, 2004.
- N. Ray and S.T. Acton, "Tracking rolling leukocytes with motion gradient vector flow," *Proc. 37th Asilomar Conf. on Signals, Systems and Computers*, Pacific Grove, California, November 9-12, 2003.
- Y. Yu and S.T. Acton, "Three-dimensional speckle reducing anisotropic diffusion," *Proc. 37th Asilomar Conf. on Signals, Systems and Computers*, Pacific Grove, California, November 9-12, 2003.
- J. Havlicek, J. Tang, S.T. Acton, R. Antonucci and F. Ouandji, "Modulation domain texture retrieval for CBIR in digital libraries," *Proc. 37th Asilomar Conf. on Signals, Systems and Computers*, Pacific Grove, California, November 9-12, 2003.
- F. Xu, Y. Yu, S.T. Acton and J. Hossack, "Detection of myocardial boundaries from ultrasound imagery using active contours," *IEEE Int. Ultrasonics Symposium*, Honolulu, Hawaii, October 5-8, 2003.
- G. Dong and S.T. Acton, "A variational method for leukocyte detection," *Proc. IEEE Int. Conf. on Image Processing*, Barcelona, September 14-17, 2003.
- Y. Yu and S.T. Acton, "Active contours with area-weighted binary flows for segmenting low SNR imagery," *Proc. IEEE Int. Conf. on Image Processing*, Barcelona, September 14-17, 2003.
- N. Ray and S.T. Acton, "Self-dual inclusion filters," *Proc. IEEE Int. Conf. on Image Processing*, Barcelona, September 14-17, 2003.
- S.R. Avula, J. Tang and S.T. Acton, "Image retrieval using segmentation," *Proc. IEEE Systems & Information Engineering Design Symposium*, Charlottesville, Virginia, April 24-25, 2003.
- J. Tang and S.T. Acton, "A decentralized image retrieval system for education," *Proc.*

IEEE Systems & Information Engineering Design Symposium, Charlottesville, Virginia, April 24-25, 2003.

N. Ray and S.T. Acton, "Tracking fast-rolling leukocytes *in vivo* with active contours," *Proc. of the IEEE Int. Conference on Image Processing*, Rochester, New York, September 22-25, 2002 (**Best paper award**).

D.P. Mukherjee, P.P. Mohanta and S.T. Acton, "Agglomerative clustering of feature data for image segmentation," *Proc. of the IEEE Int. Conference on Image Processing*, Rochester, New York, September 22-25, 2002.

N. Ray and S.T. Acton, "Active contours for cell tracking," *Proc. IEEE Southwest Symposium on Image Analysis and Interpretation*, Santa Fe, New Mexico, April 7-9, 2002.

P. Mohanta, D.P. Mukherjee and S.T. Acton, "Agglomerative clustering for image segmentation," *Proc. ICPR'02*, Quebec, Canada, August 11-15, 2002.

S.T. Acton and K. Ley, "Tracking leukocytes from *in vivo* video microscopy using morphological anisotropic diffusion," *Proc. IEEE Int. Conf. on Image Processing*, Thessaloniki, Greece, October 7-10, 2001.

Y. Yu, S.T. Acton and K. Thornton, "Detection of radioactive seeds in ultrasound images of the prostate," *Proc. IEEE Int. Conf. on Image Processing*, Thessaloniki, Greece, October 7-10, 2001.

N. Ray, S.T. Acton, T. Altes and E.E. de Lange, "MRI ventilation analysis by merging parametric active contours," *Proc. IEEE Int. Conf. on Image Processing*, Thessaloniki, Greece, October 7-10, 2001.

N. Ray, J.P. Havlicek, S.T. Acton and M. Pattichis, "Active contour segmentation guided by AM-FM dominant component analysis," *Proc. IEEE Int. Conf. on Image Processing*, Thessaloniki, Greece, October 7-10, 2001.

S.T. Acton, "A pyramidal algorithm for area morphology," *Proc. IEEE Int. Conf. on Image Processing*, Vancouver, Canada, Sept. 10-13, 2000.

Y. Yu and S.T. Acton, "Polarimetric SAR data segmentation using texture partitioning and statistical analysis," *Proc. IEEE Int. Conf. on Image Processing*, Vancouver, Canada, Sept. 10-13, 2000.

- B. Raghunathan and S.T. Acton, "Area morphological segmentation for content-based retrieval," *Proc. IEEE Int. Conf. on Image Processing*, Vancouver, Canada, Sept. 10-13, 2000.
- S.T. Acton and D.P. Mukherjee, "Image edges from area morphology," *Proc. of the IEEE Int. Conf. on Acoustics, Speech and Signal Processing (ICASSP-2000)*, Istanbul, Turkey, June 5-9, 2000.
- J.H. Bosworth and S.T. Acton, "Segmentation-based coding by morphological local monotonicity," *Proc. Asilomar Conference on Signals, Systems, and Computers*, Pacific Grove, California, October 29 – November 1, 2000.
- J. Ahmed, J. Bosworth and S.T. Acton, "Image segmentation techniques for object-based coding," *Proc. IEEE Southwest Symposium on Image Analysis and Interpretation*, Austin, Texas, April 2-4, 2000.
- B. Raghunathan and S.T. Acton, "Content based retrieval for remotely sensed imagery," *Proc. IEEE Southwest Symposium on Image Analysis and Interpretation*, Austin, Texas, April 2-4, 2000.
- Z. Hu and S.T. Acton, "Morphological pyramid image registration," *Proc. IEEE Southwest Symposium on Image Analysis and Interpretation*, Austin, Texas, April 2-4, 2000.
- S.T. Acton and A. Restrepo (Palacios), "Locally monotonic models for image and video processing," *Proc. IEEE Int. Conf. on Image Processing*, Kobe, Japan, Oct. 25-29, 1999.
- J.H. Bosworth and S.T. Acton, "The morphological lomo filter for multiscale image processing," *Proc. IEEE Int. Conf. on Image Processing*, Kobe, Japan, Oct. 25-29, 1999.
- B. Raghunathan and S.T. Acton, "A content based retrieval engine for circuit board inspection," *Proc. IEEE Int. Conf. on Image Processing*, Kobe, Japan, Oct. 25-29, 1999.
- C.A. Segall, S.T. Acton and A.K. Katsaggelos, "Sampling conditions for anisotropic diffusion," *Proc. of the SPIE Symposium on Visual Communications and Image Processing*, San Jose, January 23-29, 1999.

- A. Restrepo (Palacios) and S.T. Acton, "2-D binary locally monotonic regression," *Proc. of the IEEE Int. Conf. on Acoustics, Speech and Signal Processing (ICASSP-99)*, Phoenix, March 14-19, 1999.
- J.H. Bosworth and S.T. Acton, "Morphological image segmentation by local monotonicity," *Proc. Asilomar Conference on Signals, Systems, and Computers*, Pacific Grove, California, October 24-27, 1999.
- C.A. Segall and S.T. Acton, "Adaptive templates in scale-space," *Proc. of the SPIE Conference on Real-time Imaging (part of Photonics West)*, San Jose, January 23-29, 1999.
- D.P. Mukherjee and S.T. Acton, "On disocclusion of fingerprint images," *Proc. International Conference on Advances in Pattern Recognition*, Calcutta, India, Dec. 27-29, 1999.
- S.T. Acton, "Anisotropic diffusion and local monotonicity," *Proc. of the IEEE Int. Conf. on Acoustics, Speech and Signal Processing (ICASSP-98)*, Seattle, May 12-15, 1998.
- C.A. Segall and S.T. Acton, "Gradient independent translation via differential morphology," *Proc. of the IEEE Int. Conference on Image Processing*, Chicago, October 4-7, 1998.
- S.T. Acton, "A PDE technique for generating locally monotonic images," *Proc. of the IEEE Int. Conference on Image Processing*, Chicago, October 4-7, 1998.
- W. Chen and S.T. Acton, "Morphological pyramids for multiscale edge detection," *Proc. of the IEEE Southwest Symposium on Image Analysis and Interpretation*, Tucson, April 6-7, 1998.
- J.H. Bosworth, T. Koshimizu and S.T. Acton, "Automated segmentation of surface soil moisture from Landsat TM data," *Proc. of the IEEE Southwest Symposium on Image Analysis and Interpretation*, Tucson, April 6-7, 1998.
- K. Pope and S.T. Acton, "Modified mean curvature motion for multispectral anisotropic diffusion," *Proc. of the IEEE Southwest Symposium on Image Analysis and Interpretation*, Tucson, April 6-7, 1998.
- C.A. Segall and S.T. Acton, "Morphological anisotropic diffusion," *Proc. of the IEEE Int.*

Conference on Image Processing, Santa Barbara, Ca., October 26-29, 1997.

- A. Wright and S.T. Acton, "Watershed pyramids for edge detection," *Proc. of the IEEE Int. Conference on Image Processing*, Santa Barbara, Ca., October 26-29, 1997.
- B. Maguire, Jr., J.C. Lang, S.L. Anthony, C.T. Gorham, J.R. Reichman, S.T. Acton, and C.A. Segall, "Analysis of Coral: Quantitative Color," *8th International Coral Reef Symposium*, Panama City, Panama, H. A. Lessios, ed., July, 1996.
- M.C. Burton and S.T. Acton, "Target tracking using the anisotropic diffusion pyramid," *Proc. of the IEEE Southwest Symposium on Image Analysis and Interpretation*, San Antonio, April 8-9, 1996.
- W. Chen and S.T. Acton, "Processing issues in the automated inspection of power insulators," *Proc. of the IEEE Southwest Symposium on Image Analysis and Interpretation*, San Antonio, April 8-9, 1996.
- K.A. Davis, S.T. Acton, and B.J. Ackerson, "Segmentation of colloidal crystal images by local histogram analysis," *Proc. of the IEEE Southwest Symposium on Image Analysis and Interpretation*, San Antonio, April 8-9, 1996.
- S.T. Acton, "Edge enhancement of infrared imagery by way of the anisotropic diffusion pyramid," *Proc. of the IEEE Int. Conference on Image Processing*, Lausanne, Switzerland, September 16 - 19, 1996.
- S.T. Acton, "A pyramidal edge detector based on anisotropic diffusion," *Proc. of the IEEE Int. Conf. on Acoustics, Speech and Signal Processing (ICASSP-96)*, Atlanta, May 7-10, 1996.
- A. Yaicharoen and S.T. Acton, "A hybridized edge preservation coefficient for anisotropic diffusion," *Proc. of the SPIE Symposium on Visual Communications and Image Processing (VCIP-96)*, Orlando, March 17-20, 1996.
- S.T. Acton and A.C. Bovik, "Piecewise and local class models for image restoration," *Proc. of the IEEE Int. Conference on Image Processing*, Austin, Texas, November 13 - 16, 1994.
- S.T. Acton, A.C. Bovik and M.M. Crawford, "Anisotropic diffusion pyramids for image segmentation," *Proc. of the IEEE Int. Conference on Image Processing*, Austin, Texas, November 13 - 16, 1994.

- S.T. Acton and A.C. Bovik, "Image segmentation via piecewise constant regression," *Proc. of the SPIE Symposium on Visual Communications and Image Processing (VCIP-94)*, Chicago, September 25 - 28, 1994.
- S.T. Acton and A.C. Bovik, "Nonlinear regression for image enhancement via generalized deterministic annealing," *Proc. of the SPIE Symposium on Visual Communications and Image Processing (VCIP-93)*, Boston, November 7-12, 1993.
- S.T. Acton, A.C. Bovik, and J. Ghosh, "Generalized deterministic annealing," *Proc. of the World Congress on Neural Networks*, Portland, Oregon, July 11-15, 1993.
- S.T. Acton, J. Ghosh, and A.C. Bovik, "Fast combinatorial optimization using generalized deterministic annealing," *Proc. of the SPIE Conf. on the Science of Artificial Neural Networks (part of OE/Aerospace Science and Sensing)*, Orlando, Florida, April 12-16, 1993.
- S.T. Acton and A.C. Bovik, "Anisotropic edge detection using mean field annealing," *Proc. of the IEEE Int. Conf. on Acoustics, Speech and Signal Processing (ICASSP-92)*, San Francisco, March 23-26, 1992.
- S.T. Acton and M.M. Crawford, "A mean field solution to anisotropic edge detection of remotely sensed images," *Proc. of the IEEE Int. Geoscience and Remote Sensing Symposium*, Houston, Texas, May 26-20, 1992.
- W.N. Klarquist, S.T. Acton, and J. Ghosh, "Mean field stereo correspondence for natural images," *Proc. of the SPIE Symposium on Electronic Imaging Science and Technology*, San Jose, February 24 - March 1, 1991.
- S.T. Acton and A.C. Bovik, "GRUPO: A 3-D structure recognition system," *Proc. of the SPIE Symposium on Visual Communications and Image Processing (VCIP-90)*, Lausanne, Switzerland, October 2-4, 1990.

Conference Proceedings (Invited)

- S. Mukherjee, B. Condrón and S.T. Acton, "Chasing the neurome: segmentation and comparison of neurons," *European Signal Processing Conference*, Marrakesh, Morocco, September 9-13, 2013.
- S. Mukherjee and S.T. Acton, "Neuron tracing from confocal stacks using automated seed selection," *Asilomar Conf. on Signals, Systems and Computers*, Pacific Grove, California, November 4-7, 2013.
- A. Vaccari and S.T. Acton, "Spatiotemporal Gaussian feature detection in sparsely sample data with application to InSAR," *Proc. SPIE*, Baltimore, May 2, 2013.
- Q. Sang, Z. Lin and S.T. Acton, "An enhanced grid-based Bayesian array for target tracking," *Proc. SPIE Electronic Imaging*, San Jose, California, February 14, 2013.
- A. Vaccari, K.K. Gamage, S. Nachum, B. Condrón, C.D. Deppmann and S.T. Acton, "Assessment of Wallerian degeneration by automated image analysis," *Asilomar Conf. on Signals, Systems and Computers*, Pacific Grove, California, November 4-7, 2012.
- S.T. Acton and A. Aksel, "An information theoretic trackability measure," *Proc. SPIE Electronic Imaging*, San Francisco, California, January 23-25, 2012.
- S. Basu, B. Condrón, S.T. Acton, "Path-space algebra for constructing an average neuronal atlas from multi-class neuronal datasets," *Asilomar Conf. on Signals, Systems and Computers*, Pacific Grove, California, November 4-7, 2010.
- S. Basu, J. Poulin and S.T. Acton, "Human pose tracking from monocular video by traversing an image motion mapped body pose manifold," *Proc. SPIE Electronic Imaging*, San Jose, California, January 17-19, 2010.
- S. Basu, A. Aksel, B. Condrón, S.T. Acton, "Automatic segmentation of drosophila neurons for content based retrieval using a minimum spanning tree approach," *Asilomar Conf. on Signals, Systems and Computers*, Pacific Grove, California, November 1-4, 2009.
- S.T. Acton, "Biomedical image analysis at the cellular level," *Proc. Int. Machine Vision and Image Processing Conference*, Northern Ireland, September 3-5, 2008.

- S. Basu and S.T. Acton, "Navigation and estimation of shape variation on a shape manifold for anatomical segmentation," *Asilomar Conf. on Signals, Systems and Computers*, Pacific Grove, California, October 27-30, 2008.
- N. Ray, B. Saha and S.T. Acton, "Oil sand image segmentation using the inclusion filter," *Proc. IEEE Conf. on Image Processing*, San Diego, California, September, 2008.
- S.T. Acton, P. Soliz, M.S. Pattichis, "Content based image retrieval: The foundation for future case-based and evidence-based ophthalmology," *Proc. IEEE Int. Conf. on Multimedia and Expo*, Hannover, Germany, June 23-26, 2008.
- A.D. Gilliam and S.T. Acton, "Murine spatiotemporal cardiac segmentation," *Asilomar Conf. on Signals, Systems and Computers*, Pacific Grove, California, November 4-7, 2007.
- S. Basu and S.T. Acton, "Estimation of cell statistics on a cell manifold for high content screening with automated cell segmentation," *Asilomar Conf. on Signals, Systems and Computers*, Pacific Grove, California, November 4-7, 2007.
- W. Wu, S.T. Acton and J.C. Lach, "Real-time processing of ultrasound images with speckle reducing anisotropic diffusion," *Asilomar Conf. on Signals, Systems and Computers*, Pacific Grove, California, October 29 - November 1, 2006.
- A. Aksel, A.D. Gilliam, J.A. Hossack and S.T. Acton, "Speckle reducing anisotropic diffusion for echocardiography," *Asilomar Conf. on Signals, Systems and Computers*, Pacific Grove, California, October 29 - November 1, 2006.
- J.E. Pickard, J.A. Hossack and S.T. Acton, "Shape model segmentation of long-axis contrast enhanced echocardiography," *Proc. IEEE Int. Symp. On Biomedical Imaging*, Arlington, Virginia, April 6-9, 2006.
- S.T. Acton and N. Ray, "Detection and tracking of rolling leukocytes from intravital microscopy," *Proc. IEEE Int. Symp. On Biomedical Imaging*, Arlington, Virginia, April 15-18, 2004.
- J. Tang and S.T. Acton, "An image retrieval algorithm using multiple query images," *Proc. Int. Symp. On Signal Processing and Its Applications*, Paris, France, July 3-6, 2003.

- J. Tang, G. Dong, N. Ray and S.T. Acton, "Evaluation of intravital tracking algorithms," *Proc. 45th Midwest Symposium on Circuits and Systems*, Tulsa, Oklahoma, August 5-7, 2002.
- D.P. Mukherjee and S.T. Acton, "Conditional anisotropic diffusion for leukocyte identification," *Proc. 45th Midwest Symposium on Circuits and Systems*, Tulsa, Oklahoma, August 5-7, 2002.
- N. Ray and S.T. Acton, "Adaptive image processing via snake filters," *Proc. 35th Asilomar Conf. on Signals, Systems and Computers*, Pacific Grove, California, November 4-7, 2001.
- Y. Yu and S.T. Acton, "Segmentation of ultrasound imagery using anisotropic diffusion," *Proc. 35th Asilomar Conf. on Signals, Systems and Computers*, Pacific Grove, California, November 4-7, 2001.
- A. Goobic, M. Welser, S.T. Acton and K. Ley, "Biomedical application of target tracking in clutter," *Proc. 35th Asilomar Conf. on Signals, Systems and Computers*, Pacific Grove, California, November 4-7, 2001.
- J. Tang and S.T. Acton and D.P. Mukherjee, "Retrieving similar images in image databases using relational matrices," *Proc. 45th Midwest Symposium on Circuits and Systems*, Pacific Grove, California, August 5-7, 2002.
- N. Ray and S.T. Acton, "Image segmentation by curve evolution with clustering," *Proc. 34th Asilomar Conference on Signals, Systems, and Computers*, Pacific Grove, California, October 29 – November 1, 2000.
- B. Raghunathan and S.T. Acton, "Image segmentation by level set analysis," *Proc. 34th Asilomar Conference on Signals, Systems, and Computers*, Pacific Grove, California, October 29 – November 1, 2000.
- S.T. Acton, "Diffusion based image and video processing," *Proc. International Conference on Advances in Pattern Recognition*, Calcutta, India, Dec. 27-29, 1999.
- D.P. Mukherjee and S.T. Acton, "Document page segmentation using multiscale clustering," *Proc. IEEE Int. Conf. on Image Processing*, Kobe, Japan, Oct. 25-29, pp. 234-238, 1999.
- C.A. Segall and S.T. Acton, "Multi-scale video tracking," *Workshop on the Detection and*

Classification of Difficult Targets, Redstone Arsenal, Huntsville, AL, June 9-10, 1998.

C.A. Segall, W. Chen, and S.T. Acton, "Nonlinear pyramids for object identification," *Proc. 30th Asilomar Conference on Signals, Systems, and Computers*, Pacific Grove, California, Nov. 3-6, 1996.

Conference Proceedings (Abstract Only)

S.T. Acton, M. Stuecheli, A. Vaccari, E. Hoppe and B. Bruckno, "Model for sinkhole detection by InSAR", *Transportation Research Board*, Washington DC, January 2013.

S.T. Acton, "Image analysis in neuromics," *Bioinformatics 2012*, Dresden Germany, September 19, 2013.

S.T. Acton, M. Stuecheli, A. Vaccari, E. Hoppe, B. Bruckno, A. Bohane and G. Falorni, "Investigating Interferometric Synthetic Aperture Radar for Transportation Infrastructure Monitoring", *Transportation Research Board*, Washington DC, January 2012.

P. Soliz, V. Murray, M.S. Pattichis, S.T. Acton and S. Murillo, "Video tracking of retinal photoreceptor fields using adaptive optics," *Proc. Association for Research in Vision and Ophthalmology*, Ft. Lauderdale, Florida, April 27-May 1, 2008.

S.T. Acton, "Tracking and detection of rolling leukocytes in vivo," *NSF Workshop on Bio-image Informatics*, Santa Barbara, California, 2008.

J.J. Rychak, B. Li, S.T. Acton, A. Leppanen, R.D. Cummings, K. Ley and A.L. Klibanov, "Targeted ultrasound contrast agent retention under flow conditions," *Proc. Annual Meeting of the Society for Molecular Imaging*, Waikoloa, HI, August 30 - September 2, 2006.

S. Millington, B. Li, S. Trattinig and S.T. Acton, "Topography of talar articular cartilage determined by high resolution MRI and semi-automated image segmentation," *Proc. International Cartilage Repair Society Meeting*, San Diego, CA, January 6-11, 2006.

A.L. Klibanov, J.J. Rychak, W.C. Yang, B. Li, S.T. Acton, J.R. Lindner, K.F. Ley and S. Kaul, "Targeted ultrasound contrast agents for molecular imaging in high-shear flow," *Contrast Media Research 2005*, Evian, France, October 11-16, 2005.

- G. Dong, S.T. Acton, E. Damiano, "Detecting microspheres in venules for automated particle image velocimetry via a marked point process," *2005 Summer Bioengineering Conference*, Vail, CO, June 22-26, 2005.
- J.J. Rychak, A.L. Klibanov, W. Yang, B. Li, S. Acton, A. Leppanen, R.D. Cummings, K. Ley, "Enhanced Microbubble Adhesion to P-selectin with a Physiologically-tuned Targeting Ligand," *10th Ultrasound Contrast Symposium*, San Diego, California, March 4-5, 2005 (Winner: Best Presentation Award).
- R.L. Janiczek, N. Ray, B. French, F. Epstein and S.T. Acton, "Automated calculation of myocardial mass and infarct size in mice using a Monte Carlo Markov chain active contour," *Society for Cardiovascular Magnetic Resonance*, San Francisco, California, January 21-23, 2005
- S.A. Millington, J. Tang, S.R. Hurwitz, S.T. Acton and J.R. Crandall, "Quantitative measurement of ankle cartilage using an isotropic MRI sequence and a directional gradient vector flow snake," *9th World Congress of the OsteoArthritis Society*, Chicago, Illinois, December 2-5, 2004.
- J.J. Rychak, B. Li, S.T. Acton, A. Leppanen, R.D. Cummings and K. Ley, "Enhanced adhesion of ultrasound contrast agents targeted to p-selectin using a physiological ligand," *Proc. of the Biomedical Engineering Society Annual Meeting*, Philadelphia, Pennsylvania, October 13-16, 2004.
- Y. Yu, J. Molloy and S.T. Acton, "Automated segmentation of the prostate from ultrasound imagery using the instantaneous coefficient of variation," *Proc. American Association of Physicists in Medicine*, San Diego, California, August 10-14, 2003.
- B. Cooley, S.T. Acton, M. Salerno, J.R. Brookeman, N. Tustison, E. E. de Lange, and T. Altes, "Automated Scoring of Hyperpolarized Helium-3 MR Lung Ventilation Images: Initial Development and Validation," *Proc. Intl. Soc. Mag. Reson. Med.*, Honolulu, Hawaii, May 18-25, 2002.
- G. Usanmaz, S.T. Acton, and M. M. Crawford, "Multiresolution supervised nonparametric algorithm for feature extraction and classification in multispectral imagery," *Proc. of the SPIE Conference on Remote Sensing*, Rome, Italy, Sept. 1994.
- S.T. Acton and A.C. Bovik, "Local and piecewise classes of nonlinear regression for image enhancement," *IEEE Signal Proc. Soc. Workshop on Multidimensional Signal*

Processing, Cannes, France, September 8-10, 1993.

Invited Lectures

- “Image Analysis Challenges in the Drosophila Neurome,” UCLA Conference Center, December 6, 2013.
- “Blood and Neurons – Digital Image Analysis Conquers ALL,” Penn State University, March 22, 2013.
- “Image Analysis in Neuromics,” Bioinformatics 2012, Dresden Germany, September 19, 2012.
- “Image Analysis in Biology: From Blood to Fruit Flies,” Iowa State University, September 14, 2012.
- “Image Analysis in Heterogeneous Computer Systems,” Cloud Day, Washington DC, May 17, 2012.
- “Object Identification and Dynamics in Biological Images,” ISBI, Barcelona, Spain, May 1, 2012.
- “Investigating Interferometric Synthetic Aperture Radar for Transportation Infrastructure Monitoring,” Transportation Research Board, Washington DC, January 22, 2012.
- “Electrical Engineering Attacks Biology with Image Analysis,” Old Dominion U., Norfolk, VA, February 9, 2012.
- “Image Analysis for UAVs,” Bosh, Charlottesville, VA, November 17, 2011.
- “ATR: Not just for the Battlefield Anymore,” MITRE, July 11, 2011.
- “Image Analysis at Virginia,” DARPA, Falls Church, VA, June 1, 2011.
- “Challenges in Biological Image Analysis: Blood and Brains,” Purdue University, April 22, 2011.
- “Detection of Sinkholes using InSAR Imagery,” Dept. of Transportation, Washington DC, February 2, 2011.
- “The Next Grand Challenge for Image Analysis: the Neurome,” Groningen University, Netherlands, November 23, 2010.
- “Can Image Processing Help Neuroscience?” Shanghai Jiao Tong University, Shanghai, China, September 24, 2010.
- “Biomedical Image Analysis,” Waterloo University, Waterloo, Ontario, Canada, July 8, 2010.
- “A Graph theoretic Approach to Neuron Segmentation,” HHMI Janelia Farm, Ashburn, Virginia, May 11, 2010.
- “Cellular Level Image Analysis,” U. of Aachen, Aachen, Germany, April 20, 2010.
- “Image and Video Analysis at the University of Virginia,” Advanced Research Institute Seminar, Charlottesville, Virginia, March 4, 2010.
- “Image and Video Analysis,” IARPA program director briefing, Charlottesville, Virginia January 13, 2010.
- “Image Analysis at the Cellular Level,” ECE Eminent Speaker, Carnegie Melon U., April 2, 2009.
- “Billy the Kid and The Fourier Transform,” LASE 360: UVA’s Unforgettable Lectures,

- March 11, 2009.
- “Cellular Image Analysis in 2009,” U. of Alberta, March 20, 2009.
- “Advanced Image Segmentation using Active Models,” AFRL Meeting, Pittsburgh, November 2, 2009.
- “Image Analysis at the Cellular Level,” IMVIP Plenary Talk, September 2, 2009.
- “The Future: Cellular Image Analysis,” U. of New Mexico, April 25, 2008.
- “The Future: Cellular Image Analysis,” U. of Texas, February 19, 2008.
- “Linear Filters,” U. of Texas, February 21, 2008.
- “Analysis of Intravital Microscopic Images of Rolling Leukocytes,” U.C.S.B., January 18, 2008.
- “The Future: Cellular Image Analysis,” New Mexico State University, March 13, 2008.
- “Anisotropic Diffusion,” U. of Texas, February 20, 2008.
- “The Future: Cellular Image Analysis,” Texas Tech University, April 11, 2008.
- “Anisotropic Diffusion,” U. of New Mexico, March 10, 2008.
- “Speckle Reducing Anisotropic Diffusion,” U. of New Mexico, March 31, 2008.
- “Image and Video Analysis Research at VIVA,” Department of Homeland Security, July 9, 2007.
- “Automated Detection and Tracking of Cells,” Boston College, Chestnut Hill, Massachusetts, April 24, 2007.
- “Content Based Image Retrieval,” Lockheed Martin, Rockville, Maryland, January 29, 2007.
- “CellTrek: a Tool for Drug Discovery and Validation,” Darden School of Business, U.Va., Charlottesville, Virginia, October 24, 2006.
- “The Aorta Stomp: Image Analysis for Leukocytes and the Myocardium,” BME Seminar Series, University of Virginia, Charlottesville, September 24, 2004.
- “Detection and tracking of rolling leukocytes from intravital microscopy,” IEEE Int. Symp. On Biomedical Imaging, Invited Session on Image Formation and Analysis in Microscopy, Arlington, Virginia, April 16, 2004.
- “Tracking Targets: from Military to Biomedical,” Air Force Research Laboratory Invited Lecture, Boston, Massachusetts, March 2, 2004.
- “Snakes, blood and pixels,” U. of Maryland Center for Automation Research Invited Lecture, College Park, Maryland, November 21, 2003.
- “Tracking Targets through Scale Changes and Clutter using a Monte Carlo Method,” Army Research Laboratory, Adelphi, Maryland, May 19, 2003.
- “Enhancements to Image2000,” Invited Talk, NASA Goddard, Maryland, July 3, 2002 (with Kate Weber).
- “Signal and Image Compression,” Naval Surface Warfare Center, Dahlgren Division, Virginia, November 13, 2002.
- “Tracking Leukocytes using Active Contours,” Imaging Science, Boston, Mass., March 4, 2002.

- "Simplifying the Use of Automated Liquid Handling Robotics Using Computer Vision," LabAutomation 2002, Palm Springs Convention Center, CA, January 26-30, 2002 (with Joseph Bosworth, Chris Estey and Robin Felder).
- "Attacking Inflammatory Disease with Snakes: Intravital Video Tracking for Rolling Leukocytes," Biomedical Engineering Seminar, Charlottesville, Virginia, October 19, 2001.
- "Image Segmentation with Application to Medical Imaging," Invited Seminar, NIH, Bethesda, Maryland, October 24, 2000.
- "Image and Video Processing Using Anisotropic Diffusion," Invited Seminar, Center for Imaging Science, Johns Hopkins University, October 23, 2000.
- "NASA-related Image Processing Research at the University of Virginia," Invited Talk, NASA Goddard, Maryland, October 23, 2000.
- "Image Segmentation and Medical Applications," Invited Seminar, Varian Medical Systems, Charlottesville, Virginia, October 5, 2000.
- "Diffusion-based Image and Video Processing," Plenary Talk, International Conference on Advances in Pattern Recognition and Digital Techniques, ICAPRDT '99, Calcutta, India, December 28, 1999.
- "Document page segmentation using multiscale clustering," IEEE Int. Conf. on Image Processing Special Session on Document Compression, Kobe, Japan, October 25, 1999.
- "PDE-based Video Processing," Northwestern University invited seminar, Evanston, Illinois, February 17, 1999.
- "Image Diffusion," Wichita State University Seminar Series, Wichita, Kansas, September 18, 1998.
- "Multiscale Video Tracking and Related Topics," Science Applications International Corporation (SAIC), Denver, August 7, 1998.
- "Image Diffusion," University of Texas Signal Processing Seminar, Austin, March 12, 1998.
- "The Miracle of Vision," Fellowship of Christian Faculty and Staff, Stillwater, March 25, 1998.
- "Anisotropic Diffusion," OSU Center for Laser and Photonics Research Colloquium, Stillwater OK, March 27, 1998.
- "Order statistic filters," Electrical and Computer Engineering Seminar, University of Oklahoma, Norman, March 30, 1998.
- "Image enhancement and binary image processing," Electrical and Computer Engineering Seminar, University of Oklahoma, Norman, Feb. 11, 1998.
- "Annealing methods for high-speed optimization," U. of Houston Computer Science Invited Talk, Houston, May 11, 1993.

Service to the University, the School, and the Department

- Member, SEAS Tenure and Promotions Committee, 2013-2016
- Chair, Search Committee (two positions), ECE, 2013-2014
- Member, ECE Peer Assessment Committee, 2013
- Chair, SEAS Graduate Module implementation committee, 2011-
- Member, ECE Chair Search Committee, 2012
- Member, ECE Search committee (opto-electronics), 2013
- Member, ECE ASSET speaker committee, 2012-
- Member, SEAS strategic planning (graduate module), 2010-2011
- Member, Committee on Post-Tenure Review and Teaching Load Policy, 2010-2011
- Chair, ECE Graduate Fellowships Committee, 2009-2013
- Chair, ECE Eminent Speaker Series, 2004-2007
- Chair, ECE Graduate Recruiting Committee, 2003-2007
- Member, ECE Faculty Recruiting Committee, 2004-2007
- Member, ECE Faculty Recognition Committee, 2003-2007
- Member, Dean's Research Advisory Council, SEAS, 2003-2007
- Member, Nominations and Elections Committee, SEAS, 2003-2007
- Chair, Teaching Effectiveness Committee, SEAS, 2004-2005
- Member, SEAS Faculty Fellows, 2003-2005
- Member, Teaching Effectiveness Committee, SEAS, 2002-2004
- Speaker, SEAS New Faculty Orientation, 2003
- Mentor, Faculty-Student Mentoring Program, Office of African-American Affairs, 2001-2002
- Member, ECE Chair Search Committee, 2003
- First Year Advising, SEAS, 2004-2007
- Chair, ECE Undergraduate Planning Committee, 2001-2002
- Exhibitor, SEAS Open House, 2001, 2002, 2003
- Exhibitor, ECE Open House, 2000, 2001, 2002
- Member, hiring committee for support staff, 2003, 2004
- Member, ECE Graduate Committee, 2002-2003
- Member, STS 401/402 Committee, 2001-2004
- Member, ECE Undergraduate Committee, 2000-2002
- Member, ABET Planning Committee, 2000-2001
- Member, ECE Computer Resources Committee, 2000-2002
- Member, SEAS Student Affairs Committee, 2000-2001
- Member, Ad Hoc Committee on Teaching Loads, Spring 2001
- Chair, Graduate Programs Committee, OSU, 1998-2000
- Member, Hall of Fame Award Committee, OSU, 1998
- Member, ECEN Head Search Committee, OSU, 1997-1998
- Member, Faculty Search Committee, OSU, 1996-1997, 1998-1999, 1999-2000
- Member, Halliburton Awards Committee, OSU, 1998

- Member, Lohmann Medal Committee, OSU, 1997
- Member, ECEN Computer Committee, OSU, 1995-1997
- Member, ECEN Laboratory Development Committee, OSU, 1995-1997
- Member, Technical Advisory Committee, Center for Sensors and Sensor Technologies, OSU, 1997-2000
- Mentor, OKAMP-SEM (Oklahoma Alliance for Minority Participation in Science, Engineering and Mathematics), 1995-1997

Membership in Professional Societies

- Institute of Electrical and Electronics Engineers (IEEE), Fellow
- Signal Processing Society of the IEEE
- Engineering in Medicine and Biology Society of the IEEE

Professional Service

Editorial Work

- Associate Editor, *IEEE Transactions on Image Processing*, 1997-2003, 2007-2011, 2013- present
- Associate Editor, *IEEE Signal Processing Letters*, 2001-2004
- Guest Editor, Special Issue on Multimedia System Technologies for Educational Tools, *Multimedia Systems Journal*, 2005

IEEE (or other international) Committees

- Chair, IEEE Bioimaging and Signal Processing Technical Committee Awards Board, 2013-2014
- Member, IEEE Image, Video, and Multidimensional Signal Processing Technical Committee, 2011-2015
- Member, IEEE Bioimaging and Signal Processing Technical Committee, 2011-2015

Conference Organization and Leadership

- SPS Liaison to ISBI, 2013-
- Technical Area Chair, IEEE International Conf. on Image Processing, 2013
- Program Committee, 2013 Computational Imaging Conference
- Publicity Chair, 2013 IEEE International Symposium on Biomedical Imaging
- Technical Area Chair, IEEE International Conf. on Image Processing, 2011
- Technical Area Chair, IEEE International Symposium on Biomedical Imaging, 2011

- **General Co-Chair**, 2010 IEEE SW Symposium on Image Analysis and Interpretation
- **Vice Technical Chair**, 43rd Asilomar Conf. on Signals, Systems and Computers, 2009
- **Finance Chair**, 2009 IEEE International Symposium on Biomedical Imaging
- **Technical Area Chair**, 42nd Asilomar Conf. on Signals, Systems and Computers, 2008 (in charge of organizing six sessions in the Biomedical Signal & Image processing area)
- **Program Co-Chair**, 2008 IEEE Southwest Symposium on Image Understanding and Interpretation
- **Technical Area Chair**, IEEE International Conf. on Image Processing, 2009
- **Technical Area Chair**, IEEE International Conf. on Image Processing, 2008
- **Special Sessions Chair**, IEEE International Conf. on Image Processing, 2007
- **General Chair**, 40th Asilomar Conf. on Signals, Systems and Computers, 2006
- **Technical Program Chair**, 38th Asilomar Conf. on Signals, Systems and Computers, 2004
- **Student Paper Contest Chair**, 37th Asilomar Conf. on Signals, Systems and Computers, 2003
- **Track Chair**, 45th Midwest Symposium on Circuits and Systems, 2002 (in charge of organizing five sessions in the image processing area)
- **Technical Area Chair**, 35th Asilomar Conf. on Signals, Systems and Computers, 2001 (in charge of organizing nine sessions in the signal & image processing area)
- **Technical Area Chair**, 34th Asilomar Conf. on Signals, Systems and Computers, 2000 (in charge of organizing eight sessions in the signal & image processing area)
- **Program Co-Chair**, 1996 IEEE SW Symposium on Image Understanding and Interpretation

Conference Committees

- Member of Review Board, IEEE International Symposium on Biomedical Imaging, 2011
- Member of Technical Program Committee, IEEE International Conf. on Image Processing, 2011
- Member of Review Board, IEEE International Symposium on Biomedical Imaging, 2010
- Member of Review Board, IEEE International Symposium on Biomedical Imaging, 2010
- Member of Technical Program Committee, IEEE International Conf. on Image Processing, 2010
- Member of Review Board, IEEE International Symposium on Biomedical Imaging, 2009

- Member of Technical Program Committee, IEEE International Conf. on Image Processing, 2009
- Member of Review Board, IEEE International Symposium on Biomedical Imaging, 2008
- Member of Technical Program Committee, IEEE International Conf. on Image Processing, 2007
- Member of Technical Program Committee, IEEE International Conf. on Image Processing, 2008
- Member of Review Board, IEEE International Conference on Acoustics, Speech and Signal Processing, 2007
- Member of Review Board, Medical Image Computing and Computer-Assisted Intervention, 2007
- Member of Review Board, IEEE International Symposium on Biomedical Imaging, 2007
- Member of Program Committee, International Conference on Advances in Pattern Recognition, 2007
- Member of Technical Program Committee, Workshop on Microscopic Image Analysis with Applications in Biology, 2006
- Member of Technical Program Committee, Workshop on Orthopedic Image Analysis with Applications in Biology, 2006
- Member of Technical Program Committee, IEEE SW Symposium on Image Understanding and Interpretation, 2006
- Member of Review Board, IEEE International Symposium on Biomedical Imaging, 2006
- Member of Review Board, IEEE International Conference on Acoustics, Speech and Signal Processing, 2006
- Member of Technical Program Committee, IEEE International Conf. on Image Processing, 2005
- Member of Technical Program Committee, IEEE International Conf. on Image Processing, 2004
- Member of Program Committee, SIAM Imaging Science, 2004
- Member of Program Committee, Conf. on Computer Vision, Graphics and Image Processing, 2004
- Member, Technical Program Committee, IEEE SW Symposium on Image Understanding and Interpretation, 2004
- Member of Technical Program Committee, IEEE International Conf. on Image Processing, 2003
- Member of Advisory Committee, ICAPR, 2003
- Member, Technical Program Committee, IEEE SW Symposium on Image Understanding and Interpretation, 2002
- Member of Technical Program Committee, IEEE International Conf. on Image Processing, 2002
- Member of Technical Program Committee, IEEE International Conf. on Image Processing, 2001
- Member, ACIVS 2001 Program Committee

- Member, Referee Board, International Conference on Pattern Recognition, 2000
- Member, Technical Program Committee, IEEE SW Symposium on Image Understanding and Interpretation, 2000
- Member of Review Board, IEEE International Conf. on Image Processing, 1999
- Member of the Advisory Committee, International Conference on Advances in Pattern Recognition and Digital Techniques, ICAPRDT '99
- Member of Technical Program Committee, IEEE International Conf. on Image Processing, 1998
- Member, Technical Program Committee, IEEE SW Symposium on Image Understanding and Interpretation, 1998
- Member of Technical Program Committee, IEEE International Conf. on Image Processing, 1997
- Member, Organizing Committee, IEEE SW Symposium on Image Understanding and Interpretation, 1995-1998
- Member of Technical Program Committee, IEEE International Conf. on Image Processing, 1994

Conference Session Chair

- Session Chair, Asilomar Conference on Signals, Systems and Computers, 2012
- Session Chair, IEEE Int. Symposium on Biomedical Imaging, 2012
- Session Chair, IEEE International Conf. on Image Processing, 2012
- Session Chair, Asilomar Conference on Signals, Systems and Computers, 2011
- Session Chair, IEEE Int. Symposium on Biomedical Imaging, 2011
- Session Chair, IEEE Southwest Symposium on Image Understanding and Interpretation, 2010.
- Session Chair, Asilomar Conference on Signals, Systems and Computers, 2010
- Session Chair, IEEE International Conf. on Image Processing, 2009
- Session Chair, IEEE Int. Symposium on Biomedical Imaging, 2009
- Session Chair, Asilomar Conference on Signals, Systems and Computers, 2007
- Session Chair, IEEE International Conf. on Image Processing, 2007
- Session Chair, IEEE Int. Symposium on Biomedical Imaging, 2007
- Session Chair, IEEE International Conf. on Image Processing, 2006
- Session Chair, IEEE Southwest Symposium on Image Understanding and Interpretation, 2006.
- Session Chair, IEEE International Conf. on Image Processing, 2005
- Session Chair, Asilomar Conference on Signals, Systems and Computers, 2005

- Session Chair, Computer Based Medical Systems, NIH, 2004
- Session Chair, IEEE Southwest Symposium on Image Understanding and Interpretation, 2004.
- Session Chair, IEEE International Conf. on Image Processing, 2003
- Session Chair, IEEE International Conf. on Image Processing, 2002
- Session Chair, IEEE Southwest Symposium on Image Understanding and Interpretation, 2002.
- Session Chair, IEEE International Conf. on Image Processing, 2001
- Session Chair, IEEE International Conf. on Image Processing, 2000
- Session Chair, IEEE International Conf. on Acoustics, Speech and Signal Processing, 2000
- Session Chair, IEEE International Conf. on Image Processing, 1999
- Session Chair, International Conference on Advances in Pattern Recognition and Digital Techniques, ICAPRDT '99, Calcutta, India
- Session Chair, IEEE International Conf. on Acoustics, Speech and Signal Processing, 1999
- Session Chair, IEEE International Conf. on Image Processing, 1998
- Session Chair, IEEE International Conf. on Image Processing, 1994

Reviewing

Reviewer for:

Nature, 2008-

IEEE Transactions on Medical Imaging, 2002-

IEEE Transactions on Biomedical Engineering, 2003-

IEEE Transactions on Image Processing, 1994-

IEEE Transactions on Signal Processing, 1996-

IEEE Transactions on Pattern Analysis and Machine Intelligence, 1997-

IEEE Transactions on Circuits and Systems, Part II, 1998-2000

Proceedings of the IEEE, 1998-

Journal of Visual Communication and Image Representation, 1996-1999

Graphical Models and Image Processing, 1995-2000

Vision, Image and Signal Processing, 1995-1999

Pattern Recognition and Pattern Recognition Letters, 1994 -

Digital Signal Processing, 1994-

International Journal of Remote Sensing and Remote Sensing Letters, 1997-

Encyclopedia of Electrical Engineering, 1997-1998

International Symposium on Circuits and Systems, 1998

IEEE International Conf. on Acoustics, Speech and Signal Processing, 2000-

IEEE Signal Processing Letters, 1999-

Applied Mathematics Letters, 1999-2000

IEEE Control Systems Magazine, 1999

Journal of Electronic Imaging, 1999-

McGraw Hill Textbooks, 1999

Prentice Hall Textbooks, 2002, 2004

Neural Networks, 2000

Proposal Review

- Member (ad hoc), NIH Study Section
 - Microscopic Imaging, 2004-2008, 2010-
 - Immunology, 2005-2006
 - Bioengineering Research Partnerships, 2006-2007
- Panelist, NSF SBIR Review, 2006, 2007
- Proposal Reviewer, Michigan Technology Corridor, 2004, 2005, 2006
- Proposal Reviewer, Nebraska EPSCoR competition, 2005
- Proposal Reviewer, Tennessee DEPSCoR competition, 2005, 2006, 2007
- Panelist NSF NSDL (National Science Digital Library), 2002
- Panelist, NSF CCLI Review, 2000
- Proposal Reviewer, Netherlands Organization for Scientific Research, 2002
- Proposal Reviewer, U.S. Civilian Research and Development Foundation (CRDF), 2001
- Technical Proposal Evaluator for the Army Research Office, 1996-
- Technical Proposal Evaluator for the NSF-CISE, 1997-