Robert Pless
Associate Professor
Department of Computer Science and Engineering
Washington University

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box 1045, One Brookings Ave
St. Louis, MO, 63130

Education

December 2000	Ph.D. Computer Science Advisor: Yiannis Aloimonos	University of Maryland
May 1994	B.S. Computer Science	Cornell University

Appointments

04/06 – present	**Associate Professor**, Department of Computer Science, Washington University
9/00 – 04/06	**Assistant Professor**, Department of Computer Science, Washington University
9/94 – 8/00	**Graduate Research Assistant**, University of Maryland
5/93 – 8/93	**Research Intern**, USAMRIID, Ft. Detrick, MD

Department and University Positions

9/02 – present	Director, Graduate Admissions, Computer Science and Engineering
9/03 – present	Engineering school representative to the Undergraduate Council

Major Research Activities

My research focus is building data driven representations for video analysis. I have recently extended the geometric, statistical and computational frameworks behind these representations to focus them on several problem domains:

- Massively distributed, community supported imaging paradigms,
- Robust, real time surveillance algorithms using non-parametric, spatio-temporal statistical models of image variation.
- Structure from motion constraints for omni-directional, catadioptic, and compressed-sensing cameras,
- Specialized manifold learning algorithms for imagery, with a special focus on analysis of cine-MRI sequences.

Awards

- Faculty of the Year, (voted by School of Engineering student body), 2009
- NSF Early Faculty CAREER Award, 2006
- Emerson Electric Excellence in Teaching Award, 2006

Funding

Lockheed Martin	$100,000	"Persistent Surveillance: Combining Activity and Context Descriptors ", Wash U. PI. 12/2009 - 12/2010
ONR	$180,000	"INTERTRACK: Visual Algorithms for Interactive Tracking in Surveillance Networks", Wash U. PI. 6/3008 - 2/2011
AFOSR	$281,456	"Enhanced Detection of Hidden Targets Using Multi-discriminant Ladar", Wash U PI. 8/2007 - 2/2011

AFOSR	$230,000	"Propagation of Uncertainty in Anticipatory Image Exploitation Using Polynomial Chaos Random Process Representations", with Barron and Associates, Wash U PI. 8/2007 - 2/2011
NSF CAREER	$500,000	"CAREER: What Can be Learned by a Stationary Observer", PI. 3/3006 - 2/2011
NSF CISE-IIS	$300,000	"Non-Parametric Models of Actions and Behaviors in Video", PI. 11/2004 - 11/2007
	$1,691,921	"Applications of Laser Doppler Vibrometry", co-PI. 4/2004-9/2007
SAIC	$500,000	"Fast Semantic Content Processing", co-PI (John Lockwood, PI). 7/2005-12/2005
Boeing Inc. Phantomworks	$450,000	"Measurement of optical distortion in aircraft windscreens", co-PI (Bill Smart, PI). 1/2004 - 12/2006
Washington Univ. Bear Cub	$30,000	"Video Anomaly Detection and Localization", PI. 12/2003 - 12/2005
NSF REU	$178,000	"Research Experience for Undergraduates", PI. 5/2002 - 4/2004

Journal Publications

[1] Robert Pless and Richard Souvenir. A survey of manifold learning for images. *IPSJ Transactions on Computer Vision and Applications*, 1:83–94, 2009.

[2] Guoliang Xing, X Chang, Chenyang Lu, Jianping Wang, Robert Pless, and Joseph A O'Sullivan. Efficient coverage maintenance based on probabilistic distributed detection. *IEEE Transactions on Mobile Computing*, page in press, 2009.

[3] Bernd H Zinselmeyer, John Dempster, David L Wokosin, Jonathan J Cannon, Robert Pless, Ian Parker, and Mark J Miller. Two-photon microscopy and multidimensional analysis of cell dynamics. pg - 349-78. *Methods in enzymology*, 461:349–378, 2009.

[4] P. V. Bayly, B. L. Lewis, P. S. Kemp, R. B. Pless, and S. K. Dutcher. Efficient spatiotemporal analysis of the flagellar waveform of /it Chlamydomonas reinhardtii. *Cytoskeleton*, 2009.

[5] Nathan Jacobs and Robert Pless. Time scales in video surveillance. *IEEE Transactions on Circuits and Systems for Video Technology*, 18(8):1106–1113, August 2008.

[6] Richard Souvenir and Robert Pless. Image distance functions for manifold learning. *Image and Vision Computing*, 25(3):365–373, 2007.

[7] Guoliang Xing, Chenyang Lu, Ying Zhang, Qingfeng Huang, and Robert Pless. Minimum power configuration for wireless communication in sensor networks. *ACM Transactions on Sensor Networks*, 3(2):11, 2007.

[8] Guoliang Xing, Chenyang Lu, Robert Pless, and Qingfeng Huang. Impact of sensing coverage on greedy geographic routing algorithms. *IEEE Transactions on Parallel and Distributed Systems, Special Issue on Localized Communication and Topology Protocols for Ad Hoc Networks*, 17(4):348–360, 2006.

[9] Robert Pless. Detecting roads in stabilized video with the spatio-temporal structure tensor. *Geoinformatica*, 10(1):39–56, 2006.

[10] Guoliang Xing, Xiaorui Wang, Yuanfang Zhang, Chenyang Lu, Robert Pless, and Christopher Gill. Integrated coverage and connectivity configuration for energy conservation in sensor networks. *ACM Transactions on Sensor Networks*, 1(1):36–72, 2005.

[11] Robert Pless. Spatio-temporal background models for outdoor surveillance. *Journal on Applied Signal Processing*, 14:2281–2291, 2005.

[12] Robert Pless. Camera cluster in motion: Motion estimation for generalized camera designs. *IEEE Robotics and Automation Magazine*, 11(4):39–44, 2004.

[13] Samir Khuller, Randeep Bhatia, and Robert Pless. On local search and placement of meters in networks. *SIAM Journal on Computing*, 32(2):470–487, 2003.

[14] Robert Pless, Tomas Brodsky, and Yiannis Aloimonos. Detecting independent motion: The statistics of temporal continuity. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 22(8):68–73, 2000.

[15] Randeep Bhatia, Samir Khuller, Yoram Sussman, and Robert Pless. The full degree spanning tree problem. *Networks*, 36(4):203–209, 2000.

[16] Samir Khuller, Robert Pless, and Yoram Sussman. Fault tolerant k-center problems. *Theoretical Computer Science*, 242:237–245, 2000.

[17] Cornelia Fermuller and Robert Pless. The ouchi illusion as an artifact of biased flow estimation. *Vision Research*, 40(1):77–95, 2000.

[18] Cornelia Fermüller, Robert Pless, and Yiannis Aloimonos. Families of stationary patterns producing illusory movement: Insights into the visual system. *Proc. Royal Society, London B*, 264:795–806, 1997.

[19] Ward L Johnson, Stephen J Norton, Felix Bendec, and Robert Pless. Ultrasonic spectroscopy of metallic spheres using electromagnetic-acoustic transduction. *Journal of the Acoustical Society of America*, 91(5):2637–2642, 1992.

Book Chapters and Editorships

[1] Robert Pless, James Davis, and Stefano Soatto, editors. *Proc. IEEE Workshop on Motion and Video Computing*, Snowbird, Utah, 2009. IEEE Computer Society.

[2] Robert Pless. Imaging through time: The advantages of sitting still. In Kostas Daniilidis, Reinhard Klette, and Alex Leonardis, editors, *Imaging Beyong the Pinhole Camera*, pages 345–363. Kluwer, 2006.

[3] Robert Pless, Jose Santos-Victor, and Yasushi Yagi, editors. *Proc. IEEE Workshop on Omnidirectional Vision and Camera Networks*, Madison Wisconsin, 2003. IEEE Computer Society.

Premier Conference Publications

[1] Nathan Jacobs, Brian Bies, and Robert Pless. Using cloud shadows to infer scene structure and camera calibration. In *IEEE Conference on Computer Vision and Pattern Recognition (CVPR), (oral)*, June 2010.

[2] Nathan Jacobs, Stephen Schuh, and Robert Pless. Compressive sensing and differential image motion estimation. In *IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, March 2010. (oral presentation).

[3] Michael Dixon, Nathan Jacobs, and Robert Pless. An efficient system for vehicle tracking in multi-camera networks. In *ACM/IEEE International Conference on Distrubted Smart Cameras (ICDSC)*, September 2009.

[4] Nathan Jacobs, Walker Burgin, Nick Fridrich, Austin Abrams, Kylia Miskell, Bobby H. Braswell, Andrew D. Richardson, and Robert Pless. The global network of outdoor webcams: Properties and applications. In *ACM International Conference on Advances in Geographic Information Systems (SIGSPATIAL GIS)*, November 2009.

[5] Robert Pless, Nathan Jacobs, Michael Dixon, Ralph Hartley, Patrick Baker, Derek Brock, Nick Cassimatis, and Dennis Perzanowski. Persistence and tracking: Putting vehicles and trajectories in context. In *Applied Imagery Pattern Recognition Workshop (AIPR)*, 2009.

[6] Nathan Jacobs, Richard Souvenir, and Robert Pless. The global webcam imaging network. In *Applied Imagery Pattern Recognition Workshop (AIPR)*, 2009.

[7] Manfred Georg, Richard Souvenir, Andrew Hope, and Robert Pless. Simultaneous data volume reconstruction and pose estimation from slice samples. In *Proc. IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, pages 1–6, 2008.

[8] Nathaniel Roman and Robert Pless. A system for rapid interactive training of object detectors. In *Proc. International Symposium on Visual Computing*, volume 5359 of *Lecture Notes in Computer Science*, pages 123–132, 2008.

[9] Nathan Jacobs, Nathaniel Roman, and Robert Pless. Consistent temporal variations in many outdoor scenes. In *Proc. IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, Minneapolis,MN, June 2007.

[10] Nathan Jacobs, Scott Satkin, Nathaniel Roman, Richard Speyer, and Robert Pless. Geolocating static cameras. In *Proc. International Conference on Computer Vision (ICCV)*, Rio De Janiero, Brazil, October 2007.

[11] Andrew Hope, Manfred Georg, Jonathan Cannon, J Hubenschmidt, Wei Lu, Dan Low, and Robert Pless. Applications of manifold learning techniques in 4d-ct reconstruction. In *International Conference on the Use of Computers in Radiation Therapy (ICCR)*, June 2007.

[12] Qilong Zhang, Richard Souvenir, and Robert Pless. On manifold structure of cardiac MRI data: Application to segmentation. In *Proc. IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, pages 1092–1098, 2006.

[13] Richard Souvenir, Qilong Zhang, and Robert Pless. Image manifold interpolation using free-form deformations. In *Proc. International Conference on Image Processing (ICIP)*, pages 1437–1440, 2006.

[14] Richard Souvenir and Robert Pless. Manifold clustering. In *Proc. International Conference on Computer Vision (ICCV)*, pages 648–653, 2005.

[15] Guoliang Xing, Chenyang Lu, Ying Zhang, Qingfeng Huang, and Robert Pless. Minimum power configuration in wireless sensor networks. In *ACM International Symposium on Mobile Ad Hoc Networking and Computing (MobiHoc)*, pages 390–401, Urbana-Champaign, IL, 2005.

[16] Robert Pless and David Jurgens. Road extraction from motion cues in aerial video. In *Proceedings of the ACM Conference on Geographic Information Systems*, pages 31–38, 2004.

[17] Guoliang Xing, Chenyang Lu, Robert Pless, and Qingfeng Huang. On greedy geographic routing algorithms in sensing-covered networks. In *ACM International Symposium on Mobile Ad Hoc Networking and Computing (MobiHoc)*, pages 31–42. ACM Press, 2004.

[18] Robert Pless. Differential structure in non-linear image embedding functions. In *Proceedings of the IEEE Workshop on Articulated and non-rigid Motion*, pages 10–17, 2004.

[19] Qilong Zhang and Robert Pless. Extrinsic calibration of a camera and laser range finder. In *Proc. IEEE International Conference on Intelligent Robots and Systems (IROS)*, pages 2301–2306, 2004.

[20] Qilong Zhang and Robert Pless. Fusing video and sparse depth data in structure from motion. In *Proceedings of the IEEE International Conference on Image Processing (ICIP)*, pages 3403–3406, 2004.

[21] Guoliang Xing, Chenyang Lu, Robert Pless, and Joseph A. O'Sullivan. Co-grid: An efficient coverage maintenance protocol for distributed sensor networks. In *Proceedings of the International Symposium on Information Processing in Sensor Networks (IPSN)*, pages 414–423. ACM Press, 2004.

[22] Xiaorui Wang, Guoliang Xing, Yuanfang Zhang, Chenyang Lu, Robert Pless, and Christopher Gill. Integrated coverage and connectivity configuration in wireless sensor networks. In *Proceedings of the International Conference on Embedded Networked Sensor Systems (Sensys)*, pages 28–39. ACM Press, 2003.

[23] Robert Pless. Using many cameras as one. In *Proc. IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, pages II: 587–593, 2003.

[24] Robert Pless. Using isomap to explore video sequences. In *Proc. International Conference on Computer Vision (ICCV)*, pages 1433–1440, 2003.

[25] Robert Pless, John Larson, Scott Siebers, and Ben Westover. Evaluation of local models of dynamic backgrounds. In *Proc. IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, pages 73–78, 2003.

[26] Robert Pless. Two view discrete and differential constraints for generalized imaging systems. In *Proc. of the IEEE Workshop on Omnidirectional Vision*, pages 53–59, 2002.

[27] Patrick Baker, Cornelia Fermuller, Yiannis Aloimonos, and Robert Pless. A spherical eye from multiple camera (makes better models of the world). In *Proc. IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, pages 576–583, 2001.

[28] Patrick Baker, Robert Pless, Cornelia Fermuller, and Yiannis Aloimonos. New eyes for shape and motion estimation. In *BMVC '00: Proceedings of the First IEEE International Workshop on Biologically Motivated Computer Vision*, pages 118–128. Springer-Verlag, 2000.

[29] Cornelia Fermüller and Robert Pless. Statistical biases in optic flow. In *Proc. IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, pages 1561–1566, 1999.

[30] Robert Pless, Tomas Brodsky, and Yiannis Aloimonos. Independent motion: The importance of history. In *Proc. IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, pages 2092–2097, 1999.

Other Conference and Workshop Publications

[1] Nathan Jacobs, Walker Burgin, Richard Speyer, David Ross, and Robert Pless. Adventures in archiving and using three years of webcam images. In *IEEE CVPR Workshop on Internet Vision*, June 2009.

[2] Nathan Jacobs, Michael Dixon, Scott Satkin, and Robert Pless. Efficient tracking of many objects in structured environments. In *IEEE ICCV Workshop on Visual Surveillance*, October 2009.

[3] Nathan Jacobs and Robert Pless. Calibrating and using the global network of outdoor webcams (Winner Phd Forum Prize). In *ACM/IEEE International Conference on Distrubted Smart Cameras (ICDSC)*, September 2009.

[4] Manfred Georg, Richard Souvenir, Andrew Hope, and Robert Pless. Manifold learning for 4d ct reconstruction of the lung. In *Mathematical Methods in Biomedical Image Analysis*, 2008.

[5] Nathan Jacobs, Michael Dixon, and Robert Pless. Location-specific transition distributions for tracking. In *Proc. IEEE Workshop on Applications of Computer Vision*, 2008.

[6] Nathan Jacobs, Nathaniel Roman, and Robert Pless. Toward fully automatic geo-location and geo-orientation of static outdoor cameras. In *Proc. IEEE Workshop on Video/Image Sensor Networks*, 2008.

[7] Nathan Jacobs and Robert Pless. Shape background modeling: The shape of things that came. In *Proceedings of the IEEE Workshop on Motion and Video Computing*, 2007.

[8] Qilong Zhang and Robert Pless. Segmenting multiple familiar objects under mutual occlusion. In *Proc. International Conference on Image Processing (ICIP)*, pages 197–200, 2006.

[9] Michael Dixon, Nathan Jacobs, and Robert Pless. Finding minimal parameterizations of cylindrical image manifolds. In *CVPRW '06: Proceedings of the 2006 Conference on Computer Vision and Pattern Recognition Workshop on Perceptual Organization in Computer Vision (POCV)*, page 192, Washington, DC, USA, 2006. IEEE Computer Society.

[10] Nathan Jacobs and Robert Pless. Real-time constant memory visual summaries for surveillance. In *VSSN '06: Proceedings of the 4th ACM international workshop on Video surveillance and sensor networks*, pages 155–160, New York, NY, USA, 2006. ACM Press.

[11] Qilong Zhang and Robert Pless. Segmenting cardiopulmonary images using manifold learning with level sets. In *IEEE Workshop on Computer Vision for Biomedical Image Applications (LNCS 3765)*, pages 479–488, 2005.

[12] Qilong Zhang, Richard Souvenir, and Robert Pless. Segmentation informed by manifold learning. In *International Workshop on Energy Minimization Methods in Computer Vision and Pattern Recognition EMMCVPR (LNCS 3757)*, pages 398–413, 2005.

[13] Richard Souvenir, John Wright, and Robert Pless. Spatio-temporal detection and isolation: Results on the pets2005 datasets. In *Proceedings of the IEEE Workshop on Performance Evaluation in Tracking and Surveillance*, 2005.

[14] Richard Souvenir and Robert Pless. Isomap and non-parametric models of image deformation. In *Proceedings of the IEEE Workshop on Motion and Video Computing*, pages 195–200, 2005.

[15] John Wright and Robert Pless. Analysis of persistent motion patterns using the 3d structure tensor. In *Proceedings of the IEEE Workshop on Motion and Video Computing*, pages 14–19, 2005.

[16] Qilong Zhang and Robert Pless. Constraints for heterogeneous sensor auto-calibration. In *IEEE Workshop on Realtime 3D Sensors and Their Use*, pages 38–43, 2004.

[17] John Larson and Robert Pless. Bayesian stereo: 3d vision designed for sensor fusion. In *Intelligent Robots and Computer Vision XXII: Algorithms, Techniques, and Active Vision*, volume 5608, pages 198–206, 2004.

[18] Sean Songbai Ji, Philip V. Bayly, Panagiotis G. Massouros, Robert B. Pless, and Guy M. Genin. Optimal evaluation of strain fields using magnetic resonance imaging. In *ASME Mechanics and Materials Conference*, June 2003.

[19] Lei Wang, Cindy Grimm, and Robert Pless. A 3d pattern for pose estimation for object capture. In *Vision Interface*, pages 395–401, 2003.

[20] Mark Schroering, Cindy Grimm, and Robert Pless. A new input device for 3d sketching. In *Vision Interface*, pages 311–318, 2003.

[21] Robert Pless and Ian Simon. Embedding images in non-flat spaces. In *Conference on Imaging Science Systems and Technology*, pages 182–188, 2002.

[22] Robert Pless and Ian Simon. Using thousands of images of an object. In *Proceedings of the 6th Joint Conference on Information Science, (CVPRIP)*, pages 684–687, 2002.

[23] Robert Pless, Scott Siebers, and Ben Westover. Better background models for visual surveillance. In *Optical Society of America: Optical Sensing for Homeland Security*, 2003.

[24] Robert Pless and Cornelia Fermüller. Explaining the ouchi illusion. In *Optical Society of America*, 1999.

[25] Patrick Baker, Robert Pless, Cornelia Fermuller, and Yiannis Aloimonos. Camera networks for building shape models from video. In *Workshop on 3D Structure from Multiple Images of Large-scale Environments (SMILE)*, 2000.

Patents

Doctoral Student Advising

Richard Souvenir	Graduated 2006, DSc Computer Science. Thesis Title: "Image Manifold Clustering" Currently Assistant Professor, UNC-Charlotte
Qilong Zhang	Graduated 2007, PhD Computer Science Thesis Title: "Segmenting Biomedical Image Sequences"
Nathan Jacobs	Expected Graduation, 2010. Prospective Thesis Title: "Passive-Vision: Algorithms for Static Cameras"
Manfred Georg	Expected Graduation, 2010. Prospective Thesis Title: "Manifold Structure of High-Dimensional Time Series".
Zachary Freudenburg	Expected Graduation, 2010. Prospective Thesis Title: "Real Time, Online Clustering of e-Cog signals".
Michael Dixon	Expected Graduation, 2011. Prospective Thesis Title: "Geometric and Statistical Constraints on Recognition Problems"
Stephen Schuh	Expected Graduation, 2013. Co-advised with Tao Ju
Austin Abrams	Expected Graduation, 2014. Co-advised with Tao Ju.

Masters Thesis Advising

Rachel Tannenbaum	2009, "Superpixel Segmentation of Webcam Scenes to Infer Scene Structure"
Richard Speyer	2009. "Using Regression Techniques to Predict Weather Signals from Webcam Images", Currently at Microsoft.
Joe Izraelevitz	2009, "Automated Archeological Survey of Ancient Irrigation Canals"
Kory Postma	2005. "Computing all nearest neighbors for high dimensional point sets". Currently at Applied Physics Laboratory, MD.
Jacob Perkins	2005. "WUGLE: An abstraction of logical expressions with applications to automatic generation of online pedagogical tools for discrete mathematics."
Roman Garnett	2004. "Approximate Expectation Maximization for streaming data processing"
David Jurgens	2004, "Automated functional attribution in video using spatio-temporal filter responses"
John Larson	2003, "A Probabilistic Framework for Stereo"
Songbai Ji	2003. "Strain Field Analysis of MRI Imagery"

Students Thesis Committee Service (not as primary advisor)

Nick Tustison	Graduated 2004. DSc. Biomedical Engineering, Advisor: Amir Amini
Brandon Westover	Graduated 2004, DSc. Physics. "Image Representation and Pattern Recognition in Brains and Machines", Advisor: Joseph O'Sullivan
Paolo Favaro	"Shape From Defocus in Computer Vision", July 2003, DSc. Electrical Engineering, Advisor: Stefano Soatto
Hailin Jin	"Variational Methods for Shape Reconstruction in Computer Vision", August 2003, DSc. Electrical Engineering, Advisor: Stefano Soatto
Mark Schroering	Graduated 2003, MS. "3D Input Sketching Device", Advisor: Cindy Grimm
Dan Dooly	Graduated 2001, DSc., Computer Science, Advisor: Sally Goldman

Selected Invited Talks

MIRU - International Workshop on Computer Vision, "Manifold Learning and Medical Imaging",Karuizawa, Japan, July 28, 2008

City College of New York, "Passive Vision: A Year in the Life of 1000 OutdoorWebcams", November 8, 2007

Johns Hopkins University, Center for Imaging Science, "Learning Image Manifolds != Manifold Learning", May 2, 2006

Washington University, Mathematics Department Colloquium, "Parameterizing Natural Video through Manifold Learning", December 8, 2005

Carnegie-Mellon, VASC seminar series, "Learning Image Manifolds != Manifold Learning", December 5, 2005

Naval Research Laboratories, "Passive Vision", November 14, 2005

Dartmouth University, Computer Science Department Colloquium "Persistent Surveillance", March, 2005

UC Berkeley, Computer Vision Laboratory, "Data driven methods for surveillance and non-rigid motion analysis", November 23, 2004

University of Pennsylvania, GRASP laboratory, "Video representations for surveillance and deformable motion analysis", October 25, 2004

CICATA-IPN Queretaro, Mexico, "Real time methods for video surveillance", August 31, 2004

Workshop Chair

IEEE Workshop on Motion and Video Computing, Snowbird, Utah, 2009.
MICCAI Workshop in Manifolds in Medical Imaging, New York City, 2008.
IEEE International Workshop on Omnidirectional Vision and Camera Networks, with CVPR in Madison, Wisconsin, 2003.

Area Chair

ACCV 2009, 2010

Program Committees

Computer Vision and Pattern Recognition (CVPR) 2004,2005,2006,2007,2008,2009,2010
International Conference on Computer Vision (ICCV) 2004, 2007, 2009
European Conference on Computer Vision (ECCV) 2004,2006,2008
International Conference on Image Processing (ICIP) 2006
Workshop on Omnidirectional Vision and Camera Networks (Omnivis) 2004,2005
IEEE Workshop on Advanced 3D Imaging for Safety and Security (A3DISS 2005)
Second International Workshop on Real Time 3D Sensors and Their Use, 2005
AAAI 2004
ACM Workshop on Geographic Information Systems, ACM-GIS, 2005
International Conference on Image Processing, (ICIP) 2004

Reviewer

Journal of the Optical Society of America,
Pattern Analysis and Machine Intelligence,
Computer Vision and Image Understanding,
Image and Vision Computing,
International Journal of Computer Vision,
Photogrammetric Engineering and Remote Sensing
CVPR, ICCV, ICPR, ECCV, ICIP

Outreach and Education

Science on Tap, Video Surveillance: Fact and Fiction, February 27, 2008

Wednesday Club, St. Louis, MO, "Keeping your computer secure, an extended analogy", January 12, 2005

Development and advising projects in "Interactive Technology Installation", a joint class with Computer Science Department and the School of Art, 2003, 2004.

International Outreach

Washington University International Program Outreach. Meeting with 12 officials from the Uzbekhistan National Security Service and Human Rights office. December 13, 2004.

Collaborators

Yiannis Aloimonos, Univ. of Maryland;
Patrick Baker, Univ. of Maryland;
Phil Bayly, Washington University;
Randeep Bhattia, AT&T;
Tomas Brodsky, Active Eye Corporation;
Cornelia Fermuller, Univ. of Maryland;
Guy Genin, Washington University;
Chris Gill, Washington University;
Samir Khuller, Univ. of Maryland;
Chenyang Lu, Washington University;

Jan Neumann, Siemens Corporation;
Joseph O'Sullivan, Washington University;
Ian Simon, Washington University;
Richard Souvenir, Univ. of North Carolina, Charlotte
Bradley Stuart, General Dynamics Robotic Systems