Joseph Wilson

Curriculum Vita

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Education

1985	**PhD**, *Computer Science*, The University of Virginia.
1980	**MS**, *Applied Mathematics/Computer Science*, The University of Virginia.
1977	**BS**, *Applied Mathematics/Computer Science*, The Florida State University.

Industrial Certifications

2013	Global Information Assurance Certification (GIAC) Penetration Tester (GPEN)
2013	Global Information Assurance Certification (GIAC) Web Application Penetration Tester (GWAPT)
2014	Global Information Assurance Certification (GIAC) Exploit Researcher and Advanced Penetration Tester (GXPN)

Appointments

1984–	Assistant Professor, Computer and Information Science and Engineering Department, University of Florida, Gainesville, FL.
1994-2001	Associate Chair, Computer and Information Science and Engineering Department, University of Florida.
1981-1984	Instructor, Department of Applied Mathematics and Computer Science, University of Virginia.

Awards and Honors

2001-2002	ACM Professor of the Year Award. Awarded by UF ACM student chapter.
1998	General Ronald W. Yates Award for Excellence in Technology Transfer–the Air Force Research Laboratory
1994-1995	Teaching Incentive Program (TIP) Award. University level award program.

1994 CISE Department nominee for University Teaching Award.

1995 University of Florida ACM Professor of the Year. Awarded by UF ACM student chapter.

Teaching Experience

Undergraduate Courses Developed and Taught

Secure Programming

Penetration Testing–Ethical Hacking

Malware Reverse Engineering

Unix File Systems

Unix System Administration

Computer Vision

Object-Oriented Programming

CISE SUCCEED Section of Introduction to Engineering

Other Undergraduate Courses Taught

Computer Language Translators

Discrete Structures

Introduction to Computer and Information Science and Engineering

Graduate Courses Develped and Taught

Malware Reverse Engineering

Penetration Testing–Ethical Hacking

Formal Languages and Computation Theory

Programming Language Principles

Unix System Administration

Unix File Systems.

Other Graduate Courses Taught

Computer Vision

Image Algebra.

Grants

Algorithm and Decision Support for Multisensor Handheld Explosive Hazard Detection Systems, U.S. Army Night Vision Electronics Sensors Directorate, $1,057,332.00, PI: J.N. Wilson, CoPI: P.D. Gader, CoPI: A. Banerjee

Active Topic-Learning-Based Legal EDiscovery, UF International Center for Automated Information Research, $62,500, Co-PI: Daisy Wang, Co-PI: J.N. Wilson

A Machine Learning Approach to Representative Survey Generation, $12,000, PI: Daisy Wang, Co-PI: J.N. Wilson

Integrated Product and Process Design Program, Femtocell Spoofing Detection, $16,500 September 2013–August 2014, Walt Disney World

Integrated Product and Process Design Program, Eigenvector Face Recognition for Biometric Authentication, $16,500 September 2011–August 2012, Walt Disney World

Integrated Product and Process Design Program, Interactive Restaurant Table Design, $15,000 September 2010–August 2011, Walt Disney World

Integrated Product and Process Design Program, Wave Guest Interaction, $15,000 September 2009–August 2010, Walt Disney World

Integrated Product and Process Design Program, $15,000 September 2008–August 2009, Walt Disney World

Integrated Product and Process Design Program $15,000 September 2007–August 2008, Walt Disney World

Multi-sensor Detection of Obscured Objects, $1,497,861, October 2008–January 2011, Army Research Office, PI: P. Gader, Co-PI: J.N. Wilson.

The Morpheus Data Transformation Project, $269,263, September 2007–August 2011, NSF, PI: J. Wilson.

Feature-based Methods for Landmine Detection, $1,287,785, June 2007–June 2009, Army Research Office, PI: P. Gader, Co-PI: J.N. Wilson.

Humanitarian Demining Algorithm Improvement, $25,000, December 2004 –June 2005, U.S. Department of the Army , PI: J.N. Wilson, Co-PI: P. Gader.

Analysis of Ground Penetrating Radar for Humanitarian Demining, $476,264, November 2001 ? May 2003, Science Applications International Corporation, PI: P. Gader, Co-PI: J.N. Wilson.

Software Algorithm Improvements for Humanitarian Detection Handheld Standoff Mine Detection System, $146,469, September 2002 ? July 2004, U.S. Army Humanitarian Demining Office, PI: P. Gader, Co-PI: J.N. Wilson.

Software Analysis Algorithm Development for GSTAMIDS, $36,000, September 2002 ? December 2002, PI: P. Gader, Co-PI: J.N. Wilson.

Adaptive Image Manager for Reconfigurable Highspeed Realtime Computing Systems, $775,666, May1997 − May 2000, Submitted to DARPA, PI: G.X. Ritter, Co-PI: J. N. Wilson, Co-PI: M. Schmalz.

ATR and Neural Network Methods on the PAL System, $98,855, funded by United States AirForce Wright Laboratory Armament Directorate, October 1997 − December 1997, PI: G.X. Ritter, co-PI: J.N. Wilson.

PAL–Parallel Algebraic Logic, $624,270, funded by Lockheed Martin under sponsorship from EglinAir Force Base, June 1996-December 1999, PI: J.N. Wilson, co-PI: G.X. Ritter.

Image Algebra Support for Multisensor Target Recognition, $73,271, funded by Lockheed Martin undersponsorship from the Advanced Research Projects Agency, June 1995 − June 1996, PI: J.N. Wilson.

A Signal and Image Processing Environment for Dual-Use Applications, $176,897, funded byUnited States Air Force Wright Laboratory Armament Directorate, May 1995–May 1996, PI: G.X. Ritter, co-PI: J.N. Wilson.

Knowledge Based Algorithm Development, contract modification, $2,390,000, funded by the U.S.Air Force, May 1991 – April 1994. PI: G.X. Ritter, co-PI: J.N. Wilson.

University of Florida Aladdin Program, $47,047, funded by Honeywell SRC, January 1990 –December 1990, PI: J.N. Wilson, co-PI: G.X. Ritter.

Passive Audience Tracking III, $49,949, funded by A.C. Nielsen Advanced Information TechnologyCenter, December 1989 – August 1990. PI: J.N. Wilson, co-PI: G.X. Ritter.

Computer Vision and Image Processing Machine Architecture Design, $20,000. Florida HighTechnology and Industry Council, December 1989 – December 1990. PI: J.N. Wilson, co-PI: G.X. Ritter.

Passive Audience Tracking II, $18,199, funded by A. C. Nielsen Media Research, August 1989 –December 1989. PI: J.N. Wilson, co-PI: G.X. Ritter.

Porting the Image Algebra Environment to the DECStation, $5,000, funded by Digital Equipment Corporation, August 1989 – December 1989. PI: J.N. Wilson.

Passive Audience Tracking, $9,325, funded by A. C. Nielsen Media Research, July 1989 – August1989. PI: J.N. Wilson, co-PI: G.X. Ritter.

Knowledge Based Algorithm Development, $1,963,685, funded by the U.S. Air Force, May 1989– April 1992. PI: G.X. Ritter, co-PI: J.N. Wilson.

A Research Proposal on Passive Audience Monitoring, $39,717, funded by A.C. Nielsen MediaResearch, Tampa, FL, December 1988 – June 1989. PI: G.X. Ritter, co-PI: J.N. Wilson.

A Proposal for Computer Vision Research Instrumentation, $90,000, funded by the National ScienceFoundation and the University of Florida College of Engineering, August 1988 – August 1989. PI: B.C. Vemuri, co-PI: J.N. Wilson, G.X. Ritter.

Implementation of the Image Algebra on the Connection Machine, computing resources grant,funded by DARPA/ISTO through Syracuse University Northeast Parallel Architectures Center, June 1988-May 1999. PI: J.N. Wilson.

Research Proposal on Face Recognition, $40,423, funded by A. C. Nielsen Media Research, Tampa, FL, April 1988 – December 1988. PI: G.X. Ritter, co-PI: J.N. Wilson.

A Research Proposal on Image Processing Language Development, $126,000, funded by the AirForce Armament Division, June 1987 – December 1987. PI: G.X. Ritter, co-PI: J.N. Wilson.

Resource Allocation Request for Implementation of the Image Algebra on the Connection machine, computing resource grant, funded by DARPA/ISTO, June 1988 – June 1990. PI: J.N. Wilson.

Publications

B. Smock and J. Wilson, "A comprehensive, graph-theoretic formalization of cascading via-paths and reciprocal pointer chains," *Journal of Graph Algorithms and Applications*, submitted.

C. E. Grant, C. Pazhayidam George, V. Kanjilal, S. Nirkhiwale, J. N. Wilson, and

D. Z. Wang, "A topic-based search, visualization, and exploration system," in *The Twenty-Eighth International Flairs Conference*, 2015.

R. Close, P. Gader, and J. Wilson, "Hyperspectral unmixing using macroscopic and microscopic mixture models," *Journal of Applied Remote Sensing*, vol. 8, no. 1, pp. 083 642–083 642, 2014.

C. Pazhayidam George, S. Puri, D. Z. Wang, J. N. Wilson, and W. F. Hamilton, "Smart electronic legal discovery via topic modeling," in *The Twenty-Seventh International Flairs Conference*, 2014.

B. Smock, J. Wilson, and T. Glenn, "A hybrid approach to the fusion of partially-coinciding alarms from asynchronous or specialized detectors," in *SPIE Defense+ Security*. International Society for Optics and Photonics, 2014, pp. 90 911D–90 911D.

T. Glenn, B. Smock, J. Wilson, and P. Gader, "A run packing technique for multiple sensor fusion," in *SPIE Defense, Security, and Sensing*. International Society for Optics and Photonics, 2013, pp. 87 091K–87 091K.

P. J. Dobbins, J. N. Wilson, and J. Bolton, "Sweep detection and alignment in hand-held gpr detection devices," in *SPIE Defense, Security, and Sensing*. International Society for Optics and Photonics, 2013, pp. 87 091G–87 091G.

B. Smock, T. Glenn, and J. Wilson, "University of florida, computer and information science and engineering department, po box 116120, cse rm 301, gainesville, 32611, usa," in *Geoscience and Remote Sensing Symposium (IGARSS), 2013 IEEE International*. IEEE, 2013, pp. 4395–4398.

S. E. Yuksel, J. N. Wilson, and P. D. Gader, "Twenty years of mixture of experts," *Neural Networks and Learning Systems, IEEE Transactions on*, vol. 23, no. 8, pp. 1177–1193, 2012.

H. Frigui, L. Zhang, P. Gader, J. N. Wilson, K. Ho, and A. Mendez-Vazquez, "An evaluation of several fusion algorithms for anti-tank landmine detection and discrimination," *Information Fusion*, vol. 13, no. 2, pp. 161–174, 2012.

R. Close, P. Gader, J. Wilson, and A. Zare, "Using physics-based macroscopic and microscopic mixture models for hyperspectral pixel unmixing," in *SPIE Defense, Security, and Sensing*. International Society for Optics and Photonics, 2012, pp. 83 901L–83 901L.

B. Smock and J. Wilson, "Efficient multiple layer boundary detection in ground-penetrating radar data using an extended viterbi algorithm," in *SPIE Defense, Security, and Sensing*. International Society for Optics and Photonics, 2012, pp. 83 571X–83 571X.

J. Wood, J. Wilson, and J. Bolton, "Extracting edge histogram detector features from ground penetrating radar data without ground alignment," in *SPIE Defense, Security, and Sensing*. International Society for Optics and Photonics, 2012, pp. 83 571W–83 571W.

R. Close, P. Gader, A. Zare, J. Wilson, and D. Dranishnikov, "Endmember extraction using the physics-based multi-mixture pixel model," in *SPIE Optical Engineering+ Applications*. International Society for Optics and Photonics, 2012, pp. 85 150L–85 150L.

S. Goldberg, T. Glenn, J. N. Wilson, and P. D. Gader, "Landmine detection using two-tapped joint orthogonal matching pursuits," in *SPIE Defense, Security, and Sensing*. International Society for Optics and Photonics, 2012, pp. 83 570B–83 570B.

B. Smock and J. Wilson, "Reciprocal pointer chains for identifying layer boundaries in ground-penetrating radar data," in *Geoscience and Remote Sensing Symposium (IGARSS), 2012 IEEE International*. IEEE, 2012, pp. 602–605.

P. D. Gader, J. N. Wilson, and J. Bolton, "Feature-based methods for landmine detection with ground penetrating radar," DTIC Document, Tech. Rep., 2012.

C. P. George, D. Z. Wang, J. N. Wilson, L. M. Epstein, P. Garland, and A. Suh, "A machine learning based topic exploration and categorization on surveys," in *Machine Learning and Applications (ICMLA), 2012 11th International Conference on*, vol. 2. IEEE, 2012, pp. 7–12.

B. Smock, P. Gader, and J. Wilson, "Dynamax+ ground-tracking algorithm," in *SPIE Defense, Security, and Sensing*. International Society for Optics and Photonics, 2011, pp. 80 171I–80 171I.

J. Wood and J. Wilson, "Support vector data description for detecting the air-ground interface in ground penetrating radar signals," in *SPIE Defense, Security, and Sensing*. International Society for Optics and Photonics, 2011, pp. 80 171J–80 171J.

N. I. Rummelt and J. N. Wilson, "Array set addressing: enabling technology for the efficient processing of hexagonally sampled imagery," *Journal of Electronic Imaging*, vol. 20, no. 2, pp. 023 012–023 012, 2011.

C. P. George, T. C. Glenn, C. Fuentes, V. Gopal, G. Casella, J. Wilson, and P. Gader, "Topic learning and inference using dirichlet allocation product partition models and hybrid metropolis search," Technical Report 520, University of Florida, Tech. Rep., 2011.

R. Close, K. Watford, T. Glenn, P. Gader, and J. Wilson, "Using predictive distributions to estimate uncertainty in classifying landmine targets," in *SPIE Defense, Security, and Sensing*. International Society for Optics and Photonics, 2011, pp. 801 724–801 724.

C. E. Grant, C. P. George, C. Jenneisch, and J. N. Wilson, "Online topic modeling for real-time twitter search." in *TREC*, 2011.

R. Close, J. Wilson, and P. Gader, "A bayesian approach to localized multi-kernel learning using the relevance vector machine," in *Geoscience and Remote Sensing Symposium (IGARSS), 2011 IEEE International*. IEEE, 2011, pp. 1103–1106.

J. Wood, J. Bolton, G. Casella, L. Collins, P. Gader, T. Glenn, J. Ho, W. Lee, R. Mueller, B. Smock *et al.*, "Comparison of algorithms for finding the air-ground interface in ground penetrating radar signals," in *SPIE Defense, Security, and Sensing*. International Society for Optics and Photonics, 2011, pp. 80 171L–80 171L.

J. N. Wilson and G. X. Ritter, *Handbook of computer vision algorithms in image algebra*, 3rd ed. CRC press, 2010.

G. Ramachandran, P. D. Gader, and J. N. Wilson, "Granma: Gradient angle model algorithm on wideband emi data for land-mine detection," *Geoscience and Remote Sensing Letters, IEEE*, vol. 7, no. 3, pp. 535–539, 2010.

C. Grant, C. P. George, J.-d. Gumbs, J. N. Wilson, and P. J. Dobbins, "Morpheus: a deep web question answering system," in *Proceedings of the 12th International Conference on Information Integration and Web-based Applications & Services*. ACM, 2010, pp. 841–844.

N. I. Rummelt and J. N. Wilson, "Array set addressing: making the world safe for hexagonal imaging," in *IS&T/SPIE Electronic Imaging*. International Society for Optics and Photonics, 2010, pp. 75 320D–75 320D.

T. C. Glenn, J. N. Wilson, and K. Ho, "A multimodal matching pursuits dissimilarity measure applied to landmine/clutter discrimination," in *Geoscience and Remote Sensing Symposium (IGARSS), 2010 IEEE International*. IEEE, 2010, pp. 4200–4203.

K. Ho, P. Gader, J. Wilson, and H. Frigui, "On improving subspace spectral feature technique for the detection of weak scattering plastic antitank landmines," in *SPIE Defense, Security, and Sensing*. International Society for Optics and Photonics, 2009, pp. 73 032D–73 032D.

R. Mazhar, P. D. Gader, and J. N. Wilson, "Matching-pursuits dissimilarity measure for shape-based comparison and classification of high-dimensional data," *Fuzzy Systems, IEEE Transactions on*, vol. 17, no. 5, pp. 1175–1188, 2009.

J. Wilson, G. Ramachandran, P. Gader, B. Smock, and W. Scott, "Wideband emi pre-screening for landmine detection," in *SPIE Defense, Security, and Sensing*. International Society for Optics and Photonics, 2009, pp. 730 324–730 324.

M. S. Schmalz, G. X. Ritter, J. N. Wilson, and E. T. Hayden, "Supporting image algebra in the matlab programming language for compression research," in *SPIE Optical Engineering+ Applications*. International Society for Optics and Photonics, 2009, pp. 744 404–744 404.

K. Ho, L. Carin, P. D. Gader, and J. N. Wilson, "An investigation of using the spectral characteristics from ground penetrating radar for landmine/clutter discrimination," *Geoscience and Remote Sensing, IEEE Transactions on*, vol. 46, no. 4, pp. 1177–1191, 2008.

R. Mazhar, P. D. Gader, and J. N. Wilson, "A matching pursuit based similarity measure for fuzzy clustering and classification of signals," in *Fuzzy Systems, 2008. FUZZ-IEEE 2008.(IEEE World Congress on Computational Intelligence). IEEE International Conference on*. IEEE, 2008, pp. 1950–1955.

S. E. Yuksel, G. Ramachandran, P. Gader, J. Wilson, D. Ho, and G. Heo, "Hierarchical methods for landmine detection with wideband electro-magnetic induction and ground penetrating radar multi-sensor systems," in *Geoscience and Remote Sensing Symposium, 2008. IGARSS 2008. IEEE International*, vol. 2. IEEE, 2008, pp. II–177.

J. Bolton, P. Gader, and J. N. Wilson, "Discrete choquet integral as a distance metric," *Fuzzy Systems, IEEE Transactions on*, vol. 16, no. 4, pp. 1107–1110, 2008.

J. Wilson, "Use of rank-based decision level fusion in landmine discrimination," in *SPIE Defense and Security Symposium*. International Society for Optics and Photonics, 2008, pp. 69 531E–69 531E.

G. Heo *et al.*, "Hierarchical methods for landmine detection with wideband electro-magnetic induction and ground penetrating radar multi-sensor systems," *IGARSS 2008-2008 IEEE International Geoscience and Remote Sensing Symposium*, vol. 2, 2008.

K. Ho, J. N. Wilson, and P. D. Gader, "On the use of aggregation operator for humanitarian demining using hand-held gpr," in *Fuzzy Systems, 2008. FUZZ-IEEE 2008.(IEEE World Congress on Computational Intelligence). IEEE International Conference on*. IEEE, 2008, pp. 2103–2108.

J. N. Wilson, P. Gader, W.-H. Lee, H. Frigui, and K. Ho, "A large-scale systematic evaluation of algorithms using ground-penetrating radar for landmine detection and discrimination," *Geoscience and Remote Sensing, IEEE Transactions on*, vol. 45, no. 8, pp. 2560–2572, 2007.

W.-H. Lee, P. D. Gader, and J. N. Wilson, "Optimizing the area under a receiver operating characteristic curve with application to landmine detection," *Geoscience and Remote Sensing, IEEE Transactions on*, vol. 45, no. 2, pp. 389–397, 2007.

J. Wilson and P. Gader, "Use of the borda count for landmine discriminator fusion," in *Defense and Security Symposium*. International Society for Optics and Photonics, 2007, pp. 655 322–655 322.

R. Mazhar, J. N. Wilson, and P. D. Gader, "Use of an application-specific dictionary for matching pursuits discrimination of landmines and clutter," in *Geoscience and Remote Sensing Symposium, 2007. IGARSS 2007. IEEE International*. IEEE, 2007, pp. 26–29.

P. Ngan, S. Burke, R. Cresci, J. N. Wilson, P. Gader, K. Ho, E. Bartosz, and H. Duvoisin, "Development of region processing algorithm for hstamids: status and field test results," in *Defense and Security Symposium*. International Society for Optics and Photonics, 2007, pp. 65 532D–65 532D.

K. Ho, P. Gader, H. Frigui, and J. Wilson, "Confidence level fusion of edge histogram descriptor, hidden markov model, spectral correlation feature, and nukev6," in *Defense and Security Symposium*. International Society for Optics and Photonics, 2007, pp. 655 320–655 320.

J. Wilson, "Landmine discrimination using the kullback-leibler distance," in *Defense and Security Symposium*. International Society for Optics and Photonics, 2007, pp. 65 532B–65 532B.

R. J. Stanley, K. Ho, P. Gader, J. N. Wilson, and J. Devaney, "Land mine and clutter object discrimination using wavelet and time domain spatially distributed features from metal detectors and their fusion with gpr features for hand-held units," *Circuits, Systems & Signal Processing*, vol. 26, no. 2, pp. 165–191, 2007.

P. Ngan, S. Burke, R. Cresci, J. N. Wilson, P. Gader, and D. K. Ho, "Region processing algorithm for hstamids," in *Defense and Security Symposium*. International Society for Optics and Photonics, 2006, pp. 621 732–621 732.

J. Wilson, P. Gader, K. Ho, and R. Mazhar, "An analysis of sweep patterns for a handheld demining system," in *Defense and Security Symposium*. International Society for Optics and Photonics, 2006, pp. 62 172W–62 172W.

K. Ho, P. Gader, and J. Wilson, "Improving spectral features from gpr by exploring the depth information," in *Defense and Security Symposium*. International Society for Optics and Photonics, 2006, pp. 62 172O–62 172O.

K. Ho, P. Gader, J. Wilson, W. Lee, and T. Glenn, "Landmine detection using frequency domain features from gpr measurements and their fusion with time domain features," in *Defense and Security*. International Society for Optics and Photonics, 2005, pp. 1141–1150.

K. Ho, P. Gader, J. Wilson, and T. Glenn, "On the use of energy density spectra for discriminating between landmines and clutter objects," in *Antennas and Propagation Society International Symposium, 2005 IEEE*, vol. 3. IEEE, 2005, pp. 84–87.

J. N. Wilson, P. D. Gader, and H.-J. Suh, "Compactometry, the density distribution, and their use in discriminating landmines and clutter," in *Defense and Security*. International Society for Optics and Photonics, 2005, pp. 1132–1140.

J. N. Wilson, P. D. Gader, D. K. Ho, W.-H. Lee, R. J. Stanley, and T. C. Glenn, "Region processing of ground-penetrating radar and electromagnetic induction for handheld landmine detection," in *Defense and Security*. International Society for Optics and Photonics, 2004, pp. 933–944.

M. Foster and J. N. Wilson, "Process forensics: A pilot study on the use of checkpointing technology in computer forensics," *International journal of Digital Evidence*, vol. 3, no. 1, 2004.

M. Foster, J. N. Wilson, and S. Chen, "Using greedy hamiltonian call paths to detect stack smashing attacks," in *Information Security*. Springer, 2004, pp. 183–194.

C. S. Throckmorton, P. A. Torrione, L. M. Collins, P. D. Gader, W.-H. Lee, and J. N. Wilson, "The efficacy of human observation for discrimination and feature identification of targets measured by the niitek ground-penetrating radar," in *Defense and Security*. International Society for Optics and Photonics, 2004, pp. 963–972.

R. J. Stanley, D. K. Ho, P. D. Gader, J. N. Wilson, and J. B. Devaney, "Advances in emi and gpr algorithms in discrimination mode processing for handheld landmine detectors," in *Defense and Security*. International Society for Optics and Photonics, 2004, pp. 874–882.

H. Kwon, N. M. Nasrabadi, W.-H. Lee, P. D. Gader, and J. N. Wilson, "Proceedings for the army science conference (24th) held on 29 november-2 december 2004 in orlando, florida (cd-rom)," DTIC Document, Tech. Rep., 2004.

W.-H. Lee, P. D. Gader, J. N. Wilson, R. Weaver, S. Bishop, P. Gugino, and P. Howard, "Ground-tracking for on and off-road detection of landmines with ground penetrating radar," DTIC Document, Tech. Rep., 2004.

P. Gader, W.-H. Lee, and J. N. Wilson, "Detecting landmines with ground-penetrating radar using feature-based rules, order statistics, and adaptive whitening," *Geoscience and Remote Sensing, IEEE Transactions on*, vol. 42, no. 11, pp. 2522–2534, 2004.

P. D. Gader, R. Grandhi, W.-H. Lee, J. N. Wilson, and D. K. Ho, "Feature analysis for the niitek ground-penetrating radar using order-weighted averaging operators for landmine detection," in *Defense and Security*. International Society for Optics and Photonics, 2004, pp. 953–962.

K. Ho, P. D. Gader, and J. N. Wilson, "Improving landmine detection using frequency domain features from ground penetrating radar," in *Geoscience and Remote Sensing Symposium, 2004. IGARSS'04. Proceedings. 2004 IEEE International*, vol. 3. IEEE, 2004, pp. 1617–1620.

P. Padala and J. N. Wilson, "Gridos: Operating system services for grid architectures," in *High Performance Computing-HiPC 2003*. Springer, 2003, pp. 353–362.

M. Foster and J. N. Wilson, "Pursuing the three ap's to checkpointing with uclik," *Proceedings for the 10th International Linux System Technology Conference*, 2003.

P. D. Gader, J. N. Wilson, T. Wang, J. M. Keller, W.-H. Lee, R. Grandhi, A. K. Hocaoglu, and J. McElroy, "Fusion of acoustic/seismic and gpr detection algorithms," in *AeroSense 2003*. International Society for Optics and Photonics, 2003, pp. 1307–1315.

M. Lanham, A. Kang, J. Hammer, A. Helal, and J. Wilson, "Format-independent change detection and propagation in support of mobile computing." in *SBBD*, 2002, pp. 27–41.

J. N. Wilson and L. Chen, "Dense array expressions," in *SPIE's International Symposium on Optical Science, Engineering, and Instrumentation*. International Society for Optics and Photonics, 1999, pp. 40–47.

J. N. Wilson, E. J. Riedy, G. Ritter, and H. Shi, "An image-algebra-based simd image-processing environment," *OPTICAL ENGINEERING-NEW YORK-MARCEL DEKKER INCORPORATED-*, vol. 64, pp. 523–542, 1999.

M. Sweat and J. N. Wilson, "Overview of aim: supporting computer vision on heterogeneous high-performance computing systems," in *SPIE's International Symposium on Optical Science, Engineering, and Instrumentation*. International Society for Optics and Photonics, 1998, pp. 81–92.

A. M. Porumbescu, G. X. Ritter, M. S. Schmalz, J. N. Wilson, V. M. Hietala, and J. G. Fleming, "Efficient imaging with integrated optoelectronics: I. overview and some applications," in *Voice, Video, and Data Communications*. International Society for Optics and Photonics, 1998, pp. 184–191.

M. S. Schmalz, G. X. Ritter, J. N. Wilson, and A. M. Porumbescu, "Efficient imaging with integrated optoelectronics: Ii. massively parallel analog vision chip," in *Voice, Video, and Data Communications*. International Society for Optics and Photonics, 1998, pp. 192–205.

H. Shi, G. X. Ritter, and J. N. Wilson, "A fast general algorithm for extracting image features on simd mesh-connected computers," *Pattern recognition*, vol. 30, no. 7, pp. 1205–1211, 1997.

J. N. Wilson, R. D. Jackson, and P. C. Coffield, "Image-algebra programming environment for a new fine-grained massively parallel processor," in *AeroSense'97*. International Society for Optics and Photonics, 1997, pp. 190–195.

J. N. Wilson and E. Riedy, "Efficient simd evaluation of image processing programs," in *Optical Science, Engineering and Instrumentation'97*. International Society for Optics and Photonics, 1997, pp. 199–210.

R. D. Jackson, P. C. Coffield, and J. N. Wilson, "A new simd computer vision architecture with image algebra programming environment," in *Aerospace Conference, 1997. Proceedings., IEEE*, vol. 1. IEEE, 1997, pp. 169–185.

P. Padala and J. N. Wilson, "Operating system support for grid architectures," *Communications of the ACM*, vol. 40, no. 1, pp. 39–45, 1997.

H. Shi, G. X. Ritter, and J. N. Wilson, "Simulations between two reconfigurable mesh models," *Information Processing Letters*, vol. 55, no. 3, pp. 137–142, 1995.

H. Shi, G. X. Co-Chairman-Ritter, and J. N. Co-Chairman-Wilson, "Parallel image processing with image algebra on simd mesh-connected computers," 1994.

J. N. Wilson and R. H. Forsman, "Using templates and neighborhoods: Practical considerations and formal observations," in *SPIE's 1994 International Symposium on Optics, Imaging, and Instrumentation*. International Society for Optics and Photonics, 1994, pp. 192–203.

R. Ehrhardt, H. Huttunen, P. Kuosmanen, L. Koskinen, J. T. Astola, P. T. Koivisto, J. P. Sharpe, N. Sungar, K. M. Johnson, C. Cuciurean-Zapan *et al.*, "Image algebra and morphological image processing v," 1994.

J. N. Wilson, "Supporting image algebra in the c++ language," in *SPIE's 1993 International Symposium on Optics, Imaging, and Instrumentation*. International Society for Optics and Photonics, 1993, pp. 315–326.

H. Shi, G. Ritter, and J. Wilson, "An efficient algorithm for image-template product on simd mesh connected computers," in *Application-Specific Array Processors, 1993. Proceedings., International Conference on*. IEEE, 1993, pp. 250–260.

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Students

L.A. White. Ph.D. December 1989. Thesis Title: Extension of Global Data Flow Optimizations to Image Processing. Professor, Mercer University.

Joseph Berrios, 2002, Co-Chair w/ Manuel Bermudez, Using Wait-Free Synchronization to Increase System Reliability and Performance

Mark Foster, Ph.D., June 2004, Thesis Title: Process Forensics: The Crossroads of Checkpointing and Intrusion Detection. Harris Corporation.

Raazia, Mazhar, 2009, Co-chair w/ Paul Gader, Optimized Dictionary Design and Classification Using the Matching Pursuits Dissimilarity Measure

Nicholas Rummelt: Ph.D. December 2010, Thesis Title: Array Set Addressing for Hexagonal Grids. Eglin Air Force Base.

Ryan R. Close, 2011, Co-Chair w/ Paul Gader, Endmember and Proportion Estimation Using Physics-Based Macroscopic and Microscopic Mixture Models

Taylor C. Glen,2013, Co-Chair w/ Paul Gader, Context-Dependent Detection in Hyperspectral Imagery

M.A. Payne, M.S. 1989. Thesis Title:Segment Based Cache Design for Intel 8088 Microcomputer Systems.

O. Wee. M.S. December 1989. Thesis Title: Three-Dimensional Object Reconstruction and Analysis Using Stereo-Structured Light Ranging.

D. Langhorne. M.S. May 1990. Thesis Title: The Retargeting of Image Algebra FORTRAN to Special Purpose Architectures.

A.J. Wilcox. M.S. December 1991. Thesis Title: A Distributed Computational Approach to Evaluating Image Algebra Expressions.

J. Murillo. M.S. June 1992. Thesis Title: The Image Algebra Ada Interpreter and Automatic Generation of its Selective Parser.

J.T. Hsiao, M.S. May, 1998. Thesis Title: Securing Intellectual Property on the World-Wide Web. W.A. Hux, M.S. August 1998. Thesis Title: Network Architecture Specification Tool for the Adaptive Image Manager.

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J.M. Buckner, M.S. May 1999, Thesis Title: A Language-Independent Hybrid Editor Implemented for Image Algebra.

S.M. Buntin, M.S. August 2001. Thesis Title: Inferring XML Schemas Using XSLT.

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P. Darus, MS. May 2002. Thesis Title: Supporting Computer Science Education through Visualization of Java Program Execution.

M. Chimakurthy, M.S. December 2002. Thesis Title: An Architecture for a Certified Service Provider (CSP) to Collect Sales and Use Tax from Online Commercial Transactions.

P. Menon, M.S. May 2003. Thesis Title: Ubiquitous File System Protocol.

P. Padala, M.S. Expected December 2003. GridOS: Operating System Services for Grid Architectures.

Clint P. George, M.S. December 2010. Thesis Title: Similarity of Natural Language Queries.

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Service - Research Community

International conference session organizer and chair: Remote Sensing for Landmine and Unexploded Ordnance Identification and Removal II, IEEE International Geoscience and Remote Sensing Symposium, 2008, 8 July 2008.

Reviewer IEEE Whispers 2009 Conference

Reviewer IEEE Geoscience and Remote Sensing, 2009-

Reviewer IEEE Transactions on Geoscience and Remote Sensing, 2009-

Reviewer IEEE Transactions on Parallel and Distributed Systems, 2011-

Technical Program Committee Member, IEEE IGARSS 2009

Session Chair, IEEE IGARSS 2009, Unexploded Ordnance and Landmine Remediation, July 2009

Recent Talks

A study of Human Detection Performance using a Handheld FSCW Radar Sensor, presentation to Night Vision Electro-optics Sensor Directorate Working Group, October 2012.

A Large-Scale Evaluation of Ground Surface Detection Algorithms with Ground Penetrating Radar, invited presentation, 14th Landmine and Buried Explosive Object Detection Review Meeting, 2-3 February 2011.

Localized Multi-Kernel Relevance Vector Machines for Improved Landmine Detection, invited presentation, 14th Landmine and Buried Explosive Object Detection Review Meeting, 2-3 February 2011.

A Bayesian approach to localized multi-kernel learning using the relevance vector machine, International Geoscience and Remote Sensing Symposium, July, 2011

What Stuxnet, Duqu and Flame tell us about resisting the advanced persistent threat, UF Information Technology Security Awareness Day, Invited talk, October, 2012

Resisting the Advanced Persistent Threat, Gainesville AITP Chapter, Invited talk, April 2013

OWASP: What is it, Really, invited presentation, Kickoff Meeting to the Gainesville OWASP Chapter, April 2014.