

SHAUN S. GLEASON, PH.D.

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PROFESSIONAL PROFILE

Dr. Shaun S. Gleason is the founding Director of the Cyber Resilience and Intelligence Division at the Oak Ridge National Laboratory (ORNL). In this role, he is responsible for an R&D portfolio focused on adversarial intelligence and resilient complex systems, including the following thrust areas: (1) cybersecurity research, (2) augmented analyst intelligence, (3) cyber identity and biometrics, (4) cyber-physical systems, (5) energy and control systems security, and (6) vulnerability science. From 2013 until 2018, Shaun was the Director of the Computational Sciences and Engineering Division at ORNL. From 2011 to 2013, he was Director of the Office of Institutional Planning and was responsible for ORNL's strategic planning process and discretionary R&D investment. From 2008 to 2011, he was the Group Leader of the Imaging, Signals, and Machine Learning (ISML) Group at ORNL. Shaun has 30 years of experience in applied image processing and machine learning for industrial, security, and medical imaging applications. He earned the B.S., M.S., and Ph.D. degrees in Electrical Engineering from the University of Tennessee, Knoxville, with a research focus on x-ray computed tomography and 2D and 3D model-based medical image segmentation. In 1998 he became the co-founder and VP of a preclinical medical imaging company, ImTek, Inc., that successfully transferred ORNL-developed technology into the commercial sector. After ImTek, Inc. was acquired by CTI, Inc. and then merged with Siemens Medical, he became the Director of the Preclinical Research Division of Siemens Medical until 2008, when he returned to ORNL to lead the ISML group in the Measurements Science and Systems Engineering Division. He has authored and coauthored 120 publications, four book chapters, and has been issued 9 patents in the field of electrical engineering, computer vision, and machine learning. He is a Senior Member of the IEEE, was chair of the East TN Chapter of the IEEE Engineering in Medicine and Biology Society and was an associate editor of the SPIE Journal of Electronic Imaging from 2008 until 2015.

EDUCATION

Ph.D. Electrical Engineering, University of Tennessee, Knoxville, 2001

M.S. Electrical Engineering, University of Tennessee, Knoxville, 1992

B.S. Electrical Engineering, University of Tennessee, Knoxville, 1989

PROFESSIONAL EXPERIENCE

Founding Director, Cyber Resilience and Intelligence Division, Oak Ridge National Laboratory, 2020-Present

- Lead and establish the R&D strategy for two R&D sections and six R&D groups:
 - Adversarial Intelligence Systems Section
 - Cybersecurity Research
 - Augmented Analyst Intelligence
 - Cyber Identity and Biometrics
 - Resilient Complex Systems
 - Cyber Physical Systems
 - Energy and Control Systems Security
 - Vulnerability Science
- Primary accomplishments
 - Established a 3-year strategy to establish ORNL as a nationally recognized leader in cyber resilience and intelligence
 - Established two R&D sections and six R&D groups
 - Grew the division's scientific staff by >100% over two years
 - Grew the division's budget by >80%

Founding Director, Cyber and Applied Data Analytics Division, Oak Ridge National Laboratory, 2018-2020

- Lead and establish the R&D strategy for four R&D groups:
 - Cybersecurity
 - Cyber Physical Systems
 - Vulnerability Science
 - Biometrics and Identity Research
 - Multi-modal Analytics and Architectures
- Primary accomplishments in the first year
 - Established a 3-year strategy to establish ORNL as a nationally recognized leader in cyber and cyber-physical security
 - Established 4 new R&D groups and hired two new group leaders
 - Grew the division's scientific staff by >50% in one year
 - Grew the division's budget by >40%

Director, Computational Sciences and Engineering Division, Oak Ridge National Laboratory, 2013-2018

- Lead and establish the R&D strategy for nine R&D groups:
 - Modeling & Simulation
 - Cyber and Information Security
 - Quantum Information science

- Geographic information science
- Biomedical Science, Engineering, and Computing
- Computational Earth Sciences
- Computational Chemistry and Materials Science
- Computational Engineering
- Complex Systems
- Primary accomplishments
 - Grew budget from ~\$37M to \$65M budget in 5 years
 - Grew division staff from 134 to 180 in 5 years
 - Established two new R&D groups and hired 4 high-caliber group leaders
 - Created and developed a diverse leadership team and succession plan that is paying dividends for ORNL
 - Established a new biomedical sciences and computing group which has become a national leader within the DOE laboratory system

Director of Institutional Planning, Oak Ridge National Laboratory, 2011-2013

- Responsible for ORNL's science and technology strategic planning process.
- Laboratory Directed R&D and program development investment management for ORNL (\$50M+ budget).
- Responsible for coordination of ORNL's scientific honors and awards program.
- Served as the Chair of the Information Technology Advisory Council (ITAC) which sets the strategic roadmap for ORNL's IT application investment and oversees IT project execution.
- Developed and implemented a suite of S&T metrics to track scientific impact of ORNL.

Group Leader and Distinguished Research & Development Staff Member, Oak Ridge National Laboratory, 2008-2011

- Responsible for management of technical staff members within Image Science and Machine Vision group (13 PhD staff, 4 MS staff, 1 post-doc, 1 post-masters, 2 graduate students. ~\$7M budget).
- Responsible for overall strategic planning and program development activities within R&D portfolio of the group.
- Principal Investigator of ~\$1M total annual budget for computer-vision R&D projects in medical imaging and satellite image analysis.
- Co-Principal Investigator responsible for \$3M program in signal analysis and pattern recognition program for the Marine Corps Light Armored Vehicle Program (2010-2011)

Director of Preclinical Research & Development, Siemens Molecular Imaging, 2007-2008

- Responsible for all of Siemens Preclinical product development activities including small animal CT, PET, and SPECT modalities.
- Responsible for five functional research groups comprised of 18 scientists (6 PhD),

- engineers (10 MS or BS), and technicians (2 AD).
- Duties include overseeing all R&D activities, interfacing with product management team to define requirements, resources, budgets, and schedules for all new product development projects, direct interaction with manufacturing engineers as products are moved from development into full production.
 - Participate in strategic planning activities to set direction for preclinical research and business.

Director of Preclinical CT & SPECT Products, Siemens Medical (CTI, Inc.), 2004-2006

- Liaison between CT & SPECT R&D activities and product management/sales team.
- Interacted heavily with service organization to provide education on efficient service/troubleshooting techniques for small animal CT and SPECT scanners.
- Project Manager for the “Inveon Multimodality” development, which is now the Siemens Preclinical flagship small animal scanning platform. This platform was designed to support CT, SPECT, and PET imaging modalities. Project management included all ISO design and production standard operating procedures.

Co-founder and Vice President, ImTek, Inc., 1998-2004

- Co-founded ImTek, Inc. in Knoxville, TN. Negotiated license agreements with ORNL for transfer of microCT software technology. Played critical role in leading ImTek to become (1) the world-leading provider of small animal x-ray microCT scanners, (2) a company with 100% sales growth each of the first four years resulting in > \$5M in revenue for FY 2004, (3) a company with a new multi-modality CT-SPECT product offering in 2004 (4) a profitable company with no debt and no outside capitalization.
- Played a key role in establishing a formal partnership between ImTek and Philips Medical Systems, whereby Philips became the exclusive sales and marketing arm of ImTek.
- Managed the development and commercialization of all image reconstruction, visualization, and analysis product development for ImTek’s small animal microCT products.
- Led partnership with multi-processor hardware development company to create a real-time image reconstruction engine for use with ImTek’s microCT scanners.
- Was engaged in the sales process from initial contact to final close for over 30 imaging systems sold since the foundation of ImTek. This includes ImTek’s first two sales in Europe in 2003.
- Shared responsibility for searching for, interviewing, hiring, and managing employees including administrative support, technicians, hardware engineers and software engineers.

Senior R&D Staff Member, Oak Ridge National Laboratory, 1989-2004

- 2009-2010 (\$4M): Co-PI and task lead for a Navy-sponsored Light Armored Vehicle maintenance program to develop and employ advanced data analytics for a preventative maintenance program.
- 2003-2006 (\$2.1M): Co-PI and co-developer of a program funded by the National Institutes of Health's National Institute for Biomedical Imaging and Bioengineering to build a combination SPECT/CT system for imaging small animals. The target application for this effort was amyloidosis.
- 2002-2004 (\$800K): Co-developer of a Laboratory Directed Research and Development project to automatically analyze geospatial information system imagery (e.g. satellite images) within an automated image retrieval environment. Fractal encoding technology is a front-end processor for incoming image data to segment the image into appropriate geospatial regions (water, rural, forest, urban, etc.).
- 2002-2003 (\$125K): Co-PI and co-developer of an ORNL seed money program to develop image processing algorithms to automate the analysis of the mitotic spindle in eukaryotic cells during mitosis. The spindle is important to cell health, and abnormalities can result in cell death or cancer.
- 2002-2004 (\$850K): Co-PI and co-developer of a DOE Office of Biological and Environmental Research to develop an animal motion tracking system to compensate for animal motion during tomographic medical imaging.
- 2001-2002 (\$125K): PI and developer of an ORNL funded seed money program to develop three-dimensional shape modeling algorithms for medical image segmentation.
- 2000-2001 (\$400K): Co-PI and co-developer of ORNL project to integrate single photon emission computed tomography (SPECT) image reconstruction software with a micro-computerized tomography system.
- 1998-2000 (\$800K): Co-PI co-developer of ORNL project to develop software for a x-ray micro-computerized tomography system for screening of mutagenized mice.
- 1994-1997 (\$900K): Technical Leader of 3-year project to develop a spatial signature analysis methodology for SEMATECH (U.S. semiconductor manufacturers consortium) for improved automated inspection of semiconductors during fabrication.
- 1992-1994 (\$570K): PI and co-developer of a \$570K, 3-person project in the area of automatic defect classification for semiconductors.
- 1993-1995 (\$120K): Co-PI on an ORNL funded seed money project to develop a computer aided diagnosis system for digital mammography systems.

CLEARANCES

- DOE Q
- Top Secret

LEADERSHIP TRAINING

- Management Boot Camp, ORNL, 2008
- Developing Leadership Potential, 2009
- Leadership Anderson County, 2011

PROFESSIONAL SOCIETIES AND ACADEMIC SERVICE

- Assistant Director and Co-founder, Data Science and Engineering PhD Program, Bredesen Center, ORNL and University of Tennessee, Knoxville
- Joint Faculty, Data Science and Engineering, Bredesen Center, ORNL and University of Tennessee, Knoxville
- Senior Member, IEEE
- Member, AAAS
- Member, Organizing Committee, Electronic Imaging Conference
- Member, Board of Directors, Cyber and Information Security Consortium, 2017-Present
- Member, Executive Advisory Board, Critical Infrastructure Resilience Institute, University of Illinois, 2016-2018
- Chair, East Tennessee Chapter of the IEEE Engineering in Medicine and Biology Society, 2008-2013
- Associate Editor, Journal of Electronic Imaging, 2008-2014
- Co-Sponsor, 5th Annual ORNL Biomedical Science and Engineering Conference: Image Informatics and Analytics in Biomedicine, in Cooperation with IEEE EMBS, March 2014.
- Co-Organizer and Invited Speaker, 3rd Annual ORNL Biomedical Science and Engineering Conference: Image Informatics and Analytics in Biomedicine, in Cooperation with IEEE EMBS, March 2011.
- Co-Organizer, 2nd Annual ORNL Biomedical Science and Engineering Conference: Biomedical Research and Analysis in Neuroscience (BRAiN), in Cooperation with IEEE EMBS, May 2010.
- Co-Organizer and Plenary Speaker, 1st Annual ORNL Biomedical Science and Engineering Conference: Exploring the Intersections of Interdisciplinary Biomedical Research, in Cooperation with IEEE EMBS, March 2009.

HONORS & AWARDS

1. **UT-Battelle Research Leadership Award, Division Level, 2017** For recruiting and developing highly talented staff, sustaining programmatic growth in areas of scientific

strength, building a new PhD program in data science, and leading a growing organization with widely recognized contributions in data and computational sciences for the fields of biomedical and health science, cybersecurity, quantum information science, and national security.

2. **Oak Ridge National Laboratory Significant Event Award, 2010** Establishment of a Condition Based Maintenance Program for the U.S. Marines Light Armored Vehicle Program
3. **FLC Award for Excellence in Technology Transfer: MicroCAT, 2005** Small Animal X-ray Microtomography Scanner Development and Technology Transfer
4. **Oak Ridge National Laboratory Significant Event Award, September 2003** Development of a Stereo-based Animal Tracking System for Medical Imaging Applications
5. **2002 Southeast Region FLC Excellence in Technology Transfer Award** Automated Image Retrieval (AIR) for Semiconductor Yield Improvement
6. **2002 UT-Battelle Awards Night; Director's Award for Outstanding Team Accomplishment in Science and Technology** Automated Image Retrieval (AIR) for Semiconductor Yield Improvement
7. **Oak Ridge National Laboratory Significant Event Award, March 2000** Image Processing Software Development for Micro X-ray CT System
8. **1999 Lockheed Martin Development Accomplishment Award** Novel 3D X-ray CT Imaging System to Study Laboratory Animals in Vivo
9. **1999 Lockheed Martin Development Accomplishment Award** FBI Electronic Fingerprint Image Processing System
10. **1998 Lockheed Martin Development Accomplishment Award** Semiconductor Spatial Signature Analysis
11. **1998 Life Sciences Division Teamwork Award** High-Resolution, High-Throughput Tomographic Imaging for Mutagenized Mouse Phenotype Screening.
12. **1998 American Museum of Science and Energy Award for Technological Achievement** Spatial Signature Analyzer
13. **Federal Laboratory Consortium Award for Excellence in Technology Transfer, December, 1997** Improved Semiconductor Yield via Spatial Signature Analysis
14. **Oak Ridge National Laboratory Significant Event Award, March 1997** Delivery of the Spatial Signature Analysis Tool to SEMATECH
15. **Oak Ridge National Laboratory Significant Event Award, January, 1996** Successful completion the KLA Automatic Defect Classification CRADA
16. **1993 Martin Marietta Energy Systems Technical Achievement Award** Development and implementation of a paperless (digital image-based) system for the processing of fingerprint submissions to the FBI

17. **1992 Martin Marietta Energy Systems Technical Achievement Award** Development and implementation of a postage stamp inspection system for on-line measurement of color quality, color registration, streak detection, and perforation-to-image registration

PATENTS

1. "Resolution System for Research and Development Management," J.W. Smith, S.S. Gleason, M.L. Baker, D.L. Bond, G.L. Capps, R.A. Franklin, and K.B. Jeskie, pending October 2017.
2. "Imaging system warp correction with phantom assembly," S. Yan, S. Griffin, S. Gleason, and Z. Burbar, patent #8,988,601, issued March 2015.
3. "Quantitative Phase-Imaging Systems," C.J. Mann, P.R. Bingham, and S.S. Gleason, patent #8,248,614, issued August 2012.
4. "System and Method for Generating Motion Corrected Tomographic Images," S.S. Gleason, and J.S. Goddard, patent #8,170,302, issued May 2012.
5. "Method for non-referential defect characterization using fractal encoding and active contours," S.S. Gleason, and H. Sari- Sarraf, patent #7,218,772, issued May 2007.
6. "Anatomic and functional imaging of tagged molecules in animals," A.G. Weisenberger, S. Majewski, M.J. Paulus, and S.S. Gleason, patent # 7,209,579, issued April 2007.
7. "Contextual-based System for Automatic Defect Classification Using Multiple Morphological Masks," S.S. Gleason, M.A. Hunt, and H. Sari-Sarraf, patent # 6,456,899, issued September 2002.
8. "Ultra-High Resolution Computed Tomography Imaging," M. J. Paulus, H. Sari- Sarraf, S.S. Gleason, K.W. Tobin, and C.E. Thomas, #6,421,409, issued July 2002.
9. "Automatic Detection of Bone Fragments in Poultry using Multi-Energy X-rays," S.S. Gleason, M.J. Paulus, and J.A. Mullens, patent #6,370,223, issued April 2002.
10. "Automated Defect Spatial Signature Analysis for Semiconductor Manufacturing Process Improvement," S.S. Gleason, T.P. Karnowski, H. Sari-Sarraf, and K.W. Tobin, Jr., patent #5,982,920, issued November 1999.

INVITED PRESENTATIONS

1. Gleason S. S., Keynote, "Cyber Physical Security for Advanced Manufacturing," 47th Annual North American Manufacturing Research Conference, Erie, PA, June, 2019.
2. Gleason S. S., Keynote, "Computational Imaging, Analytics, and Simulation at ORNL," Image Analysis Mini-Symposium, St. Jude Children's Research Hospital, April 25, 2017.
3. Gleason S. S., "Current R&D and New Directions for Data Science and Machine Learning at ORNL," Seminar for the Center for Intelligent Systems and Machine

Learning (CISML), November 7, 2015.

4. Gleason S. S., "Workforce Needs for Next Generation Big Data Analytics," ORAU Annual Meeting on Big Data Analytics: Challenges and Opportunities, March 4, 2015.
5. Gleason S. S., Keynote, "An ORNL Initiative: Internet-of-Things Science Collaboration Laboratory (ISciCL)," Future of Instrumentation and Internet Workshop, May 4-6, 2015.
6. Gleason S. S., "Cyber Security R&D for the Nation," to the Congressional Caucus on Cyber Security, June 2015.
7. Gleason S. S., "Image Processing Research and Applications at the Oak Ridge National Laboratory," Invited Lecture, Graduate Level Image Processing Course, Electrical Engineering and Computer Science Department, The University of Tennessee, September 22, 2011.
8. Gleason S. S., "Preclinical Imaging Instrumentation and Computer Aided Diagnosis: Translation to Clinical Practice," Invited Speaker, Biomedical Science & Engineering Conference Workshop: Computational Image Analysis: From Desktop to Bedside, Knoxville, TN, March 15, 2011.
9. Gleason S. S., "Development of Computational Methods for Neurobiological Research," Plenary Speaker, Biomedical Science and Engineering Conference, ORNL, 2009.
10. Gleason, S. S., "Multimodality Preclinical Imaging: Technology and Commercialization," Instrument Society of America Meeting, January 2008.
11. Gleason, S.S., "Micro-CT Imaging of Small Animals: Instrumentation and Applications," Mayo Clinic, Scottsdale, AZ, October 2003.
12. Gleason, S.S., Michael Paulus, James Goddard, Ryan Kerekes, Andrew Weisenberger, Stan Majewski, Mark Smith, Ben Welch, "Dual Modality Micro-SPECT and Micro-CT Imaging of Small Animals in Motion," Biomedical Engineering Society Meeting, Nashville, TN, October 2003.
13. Gleason, S. S., "Small Animal Biomedical Image Processing at the Oak Ridge National Laboratory," Washington University, December 2001.
14. Gleason, S.S., "Biomedical Image Processing at the Oak Ridge National Laboratory," Columbia University Psychiatric Institute, November 2001.
15. Gleason, S.S., "State-of-the-Art Technology in High-Resolution Small Animal Imaging," Guest Lecture at Computer Science Seminar, University of Tennessee, Knoxville, May 2001.
16. Gleason, S.S., Paulus, M.J., "Small Animal Imaging using High-Resolution X-ray Computed Tomography," Scientist's Center for Animal Welfare Conference, May 2001.
17. Gleason, S.S., Paulus, M.J., Branning, J., Johnson, D.K., Sari-Sarraf, H., "Computer Assisted Diagnosis in Medical Imaging: Segmentation via Deformable Models: A MicroCAT Case Study," *2nd Annual Tennessee Bioengineering Conf.*, March 2000.

18. Tobin, K.W., Karnowski, T.P., Gleason, S.S., F. Lakhani, "Defect Data Management in the Semiconductor Manufacturing Environment", Society of Manufacturing Engineers, Applied Machine Vision 98, Nashville, TN, May 18-22, 1998.
19. Sari-Sarraf, H., Gleason, S. S., Redmon, C. G., Hudson, K. T., Hubner, K. F., Computer-aided Diagnosis of Mammographic Images, The University of Tennessee Nuclear Engineering Technical Seminar, March 10, 1996.
20. Tobin K. W., Gleason S. S., Karnowski, T. P., Sari-Sarraf, H., Bennett, M. H., Semiconductor Defect Data Reduction for Process Automation and Characterization, International Forum Process Analytical Chemistry, January 21-24, 1996.

PUBLICATIONS

BOOK CHAPTERS

1. Gleason, S., Paulus, M., and Osborne, D., Molecular Imaging: Principles and Practice: Principles of Micro X-ray Computed Tomography, Weisleder, R., *et al.*, eds., McGraw Hill, ISBN 9781607950059, 2010.
2. Gleason, S., Paquit, V., and Aykac, D., Quantitative Magnetic Resonance Imaging in Cancer: From Theory to Clinical Applications: Image Segmentation, Yankeelov, T., *et al.*, eds., CRC Press, ISBN 978-1-4398-2057-5, 2011.
3. Miller, S., Bilheux, J., Gleason, S., Nichols, T., Bingham, P., and Green, M., Medical Imaging: Large-scale User Facility Imaging and Scattering Techniques to Facilitate Basic Medical Research, ISBN 978-953-307-774-1, 2011.
4. J. Gregor, S. Gleason, S. Kennel, M. Paulus, A. Solomon, P. Hawkins, and J. Wall, A microSPECT/CT system for imaging of AA-amyloidosis in mice, M. Kupinski and H. Barrett (eds.), *Small-Animal SPECT Imaging*, Chapter 15, Plenum US, 2005.

JOURNALS

1. Jiangye Yuan, Shaun S. Gleason, and Anil M. Cheriyyadat, "Systematic Benchmarking of Aerial Image Segmentation," *IEEE Geoscience and Remote Sensing Letters*, vol. 10, No. 6, November 2013.
2. Martins RA, Davis D, Kerekes R, Zhang J, Bayazitov IT, Hiler D, Karakaya M, Frase S, Gleason S, Zakharenko SS, Johnson DA, and Dyer MA. Retinoblastoma (Rb) regulates laminar dendritic arbor reorganization in retinal horizontal neurons. *Proc Natl Acad Sci USA*. 2011 Dec 27;108(52):21111-6. doi: 10.1073/pnas.1108141108. Epub 2011 December 12. PubMed PMID: 22160703; PubMed Central PMCID: PMC3248513.
3. C. Mann, P. Bingham, H. Lin, V. Paquit, and S. Gleason, "Dual Modality Live Cell Imaging with Multiple-Wavelength Digital Holography and Epi-Fluorescence," *3D Research* 01, 05, 2011.

4. Ryan A. Kerekes, Rodrigo A. P. Martins, Denise Davis, Mahmut Karakaya, Shaun Gleason and Michael A. Dyer. Automated Tracing of Horizontal Neuron Processes During Retinal Development. *Neurochemical Research*, vol. 36, no. 4, pp. 583-593, 2011.
5. Edmund Y. Lam; Shaun S. Gleason; Kurt S. Niel, "Special Section Guest Editorial: Quality Control for Artificial Vision," *J. of Electronic Imaging*, 19(3), 031201 (2010). doi:10.1117/1.349700.
6. Solecki DJ, Trivedi N, Govek EE, Kerekes RA, Gleason SS, and Hatten ME, "Par6 α regulated Myosin II motors drive the coordinated movement of centrosome and soma during glial-guided neuronal migration," *Neuron* 63(1):63-80, 2009.
7. J. Gregor, T. Benson, S. Gleason, M. Paulus, S. Figueroa, T. Hoffman, S. Kennel, and J. Wall, "Approximate volumetric system models for microSPECT," *IEEE Transactions on Nuclear Science*, vol. 53, pp. 2646-2652, October 2006.
8. J.S. Wall, S.J. Kennel, M.J. Paulus, S. Gleason, J. Gregor, J. Baba, M. Schell, T. Richey, B. O'Nuallain, R. Donnell, P.N. Hawkins, D.T. Weiss and A. Solomon, "Quantitative high-resolution microradiographic imaging of amyloid deposits in a novel murine model of AA-amyloidosis," *Amyloid: The Journal of Protein Folding Disorders*, 12, (3), 149-156, September 2005.
9. J.S. Wall, M.J. Paulus, S. Gleason, J. Gregor, A. Solomon and S.J. Kennel, "Micro-Imaging of Amyloid in Mice," *Methods Enzymol.* 412:161-82, PMID: 17046658, 2006.
10. Weisenberger, A. G., Gleason, S. S., Goddard, J., Kross, B., Majewski, S., Meikle, S. R., Paulus, M. J., Pomper, M., Popov, V., Smith, M. F., Welch, B. L., and Wojcok, R., "A Restraint-Free Small Animal SPECT Imaging System with Motion Tracking," *IEEE Trans. on Nucl. Science*, vol. 52, no. 3, pp. 638-644, June 2005.
11. J. Price, D. Aykac, S. Gleason, K. Chourey, and Y. Liu, "Quantitative Comparison of Mitotic Spindles by Confocal Image Analysis," *Journal of Biomedical Optics*, vol. 10, no. 4, 044012, July/August 2005.
12. Hung-Yam Chan, Hamed Sari-Sarraf, Bradley I. Grinstead, and Shaun S. Gleason, "Content-Based Compression of Mammograms with Customized Fractal Encoding and a Modified JPEG2000," *J. Optical Engineering*, Vol. 43, Issue 12, 2004.
13. J. Gregor, S. Gleason, M. Paulus, and J. Cates, "Fast Feldkamp reconstruction based on focus of attention and distributed computing", *International Journal of Imaging Systems and Technology*, vol.12, no. 6, pp. 229-234, 2002.
14. S. Gleason, H. Sari-Sarraf, M. Abidi, O. Karakashian, and F. Morandi, "A New Deformable Model for Analysis of X-ray CT Images in Preclinical Studies of Mice for Polycystic Kidney Disease," *IEEE Trans. on Medical Imaging*, vol. 21, no. 10, October 2002.
15. M. Paulus, and S. Gleason, "Issues in Animal Handling for Micro CT," *High-Resolution Imaging of Small Animals*, September 2001.

16. M. Paulus, S. Gleason, M. Easterly, and C. Foltz, "A review of high-resolution x-ray computed tomography and other imaging modalities for small animal research," *Lab Animal* 30(3), 36-45, 2001.
17. M. Paulus, S. Gleason, S. Kennel, P. Hunsicker, and D. Johnson, "High resolution x-ray computed tomography: an emerging tool for small animal cancer research," *Neoplasia*, 2(1), 62-70, 2000.
18. S. Gleason, H. Sari-Sarraf, M. Paulus, D. Johnson, S. Norton, and M. Abidi, "Reconstruction of Multi-Energy, X-ray Computed Tomography Images of Laboratory Mice," *IEEE Trans. on Nuclear Science*, vol.46, no.4, pt.2, pp. 1081-6, August 1999.
19. M. Paulus, H. Sari-Sarraf, S. Gleason, M. Bobrek, J. Hicks, D. Johnson, J. Behel, and L. Thompson, "A new x-ray computed tomography system for laboratory mouse imaging," *IEEE Trans. on Nuclear Science*, vol. 46, no.3, pt.2, pp. 558-64, June 1999.
20. K. Tobin, T. Karnowski, S. Gleason, D. Jensen, and F. Lakhani, "Using Historical Wafermap Data for Automated Yield Analysis," *Journal of Vacuum Science Technology*, Summer, 1999.
21. Tobin K. W., Gleason S. S., Karnowski, T. P., and Bennett, M. H., "Semiconductor Defect Data Reduction for Process Automation and Characterization," *Journal of Process and Analytical Chemistry*, vol. 3, no. 3,4, Spring, 1998.
22. Tobin, K.W., Gleason, S. S., Karnowski, T. P., and Guidry, D., "Using SSA to Measure the Efficacy of Automated Defect Data Gathering", *Micro*, p. 27-33, April 1998.
23. Tobin, K. W., Gleason, S. S., Lakhani, F., and Bennett, M. H., "Automated Analysis for Rapid Defect Sourcing and Yield Learning," *Future Fab International*, issue 4, vol. 1, p. 313-320, 1998.
24. Gleason, S. S., Tobin K. W., and Karnowski, T. P., "Spatial Signature Analysis of Semiconductor Defects for Manufacturing Problem Diagnosis," *Solid State Technology*, July 1996.

CONFERENCES AND PROCEEDINGS

1. Vatsavai, R.R.; Bhaduri, B.; Cheriyyadat, A.; Arrowood, L.; Bright, E.; Gleason, S.; Diegert, C.; Katsaggelos, A.; Pappas, T.; Porter, R.; Bollinger, J.; Chen, B.; and Hohimer, R.; , "Geospatial image mining for nuclear proliferation detection: Challenges and new opportunities," Geoscience and Remote Sensing Symposium (IGARSS), 2011 IEEE International , vol., no., pp.48 51, 25-30 July 2011.
2. Roberts, R. S.; Pope, P. A.; Vatsavai, R. R.; Jiang, M.; Arrowood, L. F.; Trucano, T. G.; Gleason, S.; Cheriyyadat, A.; Sorokine, A.; Katsaggelos, A. K.; Pappas, T. N.; Gaines, L. R.; and Chilton, L. K.; , "Design of benchmark imagery for validating facility annotation algorithms," Proc. IEEE International Geoscience And Remote Sensing Symposium (IGARSS), July 24-29, 2011.
3. S. Gleason, M. Dema, H. Sari-Sarraf, A. Cheriyyadat, R. Vatsavai, and R. Ferrell. "Verification & Validation of a Semantic Image Tagging Framework via Generation of

- Geospatial Imagery Ground Truth." IEEE International Geoscience and Remote Sensing Symposium. August 2011.
4. Sridharan Kamalakannan; Christopher J. Mann; Philip R. Bingham; Thomas P. Karnowski; and Shaun S. Gleason, "Automatic firearm class identification from cartridge cases," SPIE Proceeding on Image Processing: Machine Vision Applications IV, vol. 7877, #78770P, February 2011.
 5. Vincent C. Paquit, Shaun S. Gleason and Udaya C. Kalluri, "Monitoring plant growth using high resolution micro-CT images", Proc. SPIE 7877, 78770W (2011).
doi:10.1117/12.876719
(http://spiedigitallibrary.org/proceedings/resource/2/psisdg/7877/1/78770W_1)
 6. Kerekes, R.A.; Gleason, S.S.; Martins, R.A.P.; and Dyer, M.; , "Fully automated segmentation and characterization of the dendritic trees of retinal horizontal neurons," Biomedical Sciences and Engineering Conference (BSEC), 2010 , vol., no., pp.1-4, 25-26 May 2010. doi: 10.1109/BSEC.2010.5510843. URL:
<http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=5510843&isnumber=5510791>
 7. Shaun Gleason, Vincent Paquit, Hassina Bilheux, and Udaya Kalluri, "X-ray and Neutron Imaging for Plant System Biology Investigations," Proc. of the Future of Instrumentation International Workshop, November 2010.
 8. Ranga Raju Vatsavai, Anil Cheriyyadat, and Shaun Gleason: Unsupervised Semantic Labeling Framework for Identification of Complex Facilities in High-resolution Remote Sensing Images. In the proceedings of the IEEE ICDM International workshop on Spatial and Spatiotemporal Data Mining (SSTDM-10), IEEE, December 2010.
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