

Dr. M. Stella Atkins: Research Publications (as at Dec. 15, 2011).

Articles in Refereed Journals

1. P. Wighton, T.K. Lee, G. Mori and **M.S. Atkins**. Conditional Random Fields and Supervised Learning in Automated Skin Lesion Diagnosis, *International Journal of Biomedical Imaging*, vol. 2011, Article ID 846312, 10 pages, 2011
2. P. Wighton, T.K. Lee, H. Lui, D.L. McLean and **M.S. Atkins**. Generalizing common tasks in automated skin lesion diagnosis. *IEEE Transactions on Information Technology in Biomedicine*, 15(4):622-629, July 2011.
3. B. Zheng, G. Tien, C. Daigle, **M. S. Atkins**, H. Tanin, C. Swindells, A. Menghetti, O. Panton, A. K. Qayumi. Surgeons' vigilance in the operating room. *American Journal of Surgery*, 201(5): 667-671, May 2011
4. M. D. Tisdall, R. A. Lockhart and **M S. Atkins**. The Bias/Variance Trade-off in Estimators for MR Signal Magnitude. *Magnetic Resonance in Medicine*, 65(5): 1-12, May 2011.
5. B. Zheng, G. Tien, **M. S. Atkins**, C. Swindells, H.Tanin, A. Meneghetti, K. Qayumi, O. Neely, M. Panton. Surgeon's vigilance in the operating room. *American Journal of Surgery*, 201(5): 667-671, May 2011.
6. P. Wighton, T.K. Lee, D. McLean, H. Lui and **M.S. Atkins**. Chromatic Aberration Correction – An Enhancement to the Calibration of Low Cost Digital Dermoscopes. *Skin Research and Technology*, 17(2): 1-9, May 2011.
7. M. Sadeghi, M. Razmara, T.K. Lee and **M.S. Atkins**, A novel method for detection of pigment network in dermoscopic images using graphs, *Computerized Medical Imaging and Graphics* 35(2011): 137-143, May 2011.
8. Y. Tan, G.Tien, B.B. Forster and **M.S. Atkins**. Evaluating eyegaze targeting to improve mouse pointing for radiology tasks. *Journal of Digital Imaging*, 24(1): 96-106, Feb. 2011
9. **M. S. Atkins**, J. Fernquist, A. E. Kirkpatrick and B. B. Forster. Evaluating interaction techniques for stack mode viewing, *Journal of Digital Imaging*, 22(4), 369-375, June 2009.

10. M. D. Tisdall, P. Wighton, G. Damberg, N. Nguyen, Y. Tan, **M. S. Atkins**, H. Li, and H. Seetzen. Comparing Signal Detection between Novel High-Luminance HDR and Standard Medical LCD Displays, *Journal of Display Technology*, 4(4): 398-410. Dec. 2008
11. K. Voll, B. Forster and **M.S. Atkins**. Improving the Utility of Speech Recognition Through Error Detection. *Journal of Digital Imaging*, 21(4): 371-377, Dec. 2008.
12. M. el-Helw, M. Nicolaou, A. Chung, Guang-Zhong Yang and **M.S. Atkins**. A gaze-based study for investigating the perception of visual realism in simulated scenes, *ACM Transactions on Applied Perception*, 5(1): article 3, 20 pages, Jan. 2008.
13. M. Kwiatkowska, **M.S. Atkins**, N.T. Ayas, and C.F. Ryan. Knowledge-Based Data Analysis: First Steps towards the Creation of Clinical Prediction Rules, using a new Typicality Measure. *IEEE Transactions on Information Technology in Biomedicine*, 11(6):651-660, Nov. 2007
14. R. Mandryk and **M.S. Atkins**. A Fuzzy Physiological Approach for Continuously Modelling Emotion during Interaction with Play Environments. *International Journal of Human Computer Studies*, 6(4): 329-347, 2007.
15. M.D. Tisdall and **M.S. Atkins**. Using human and model performance to compare MRI reconstructions. *IEEE Transactions on Medical Imaging*, 25(11): 1510-1517, Nov. 2006.
16. H.L.M. Lam, J. Dill, **M.S. Atkins** and A.E. Kirkpatrick, Displaying Medical Laboratory Reports on Personal Digital Assistants, *International Journal of Human Computer Interaction*, 21(1):73-89, 2006.
17. **M.S. Atkins**, A. Moise, and R. Rohling. An application of eyegaze tracking for designing radiologists' workstations: insights for comparative visual search tasks. *ACM Transactions on Applied Perception*, 3(2):136-151, April 2006.
18. M.K. Tory, T. Mueller, **M.S. Atkins** and A.E. Kirkpatrick, Visualization Task Performance with 2D, 3D and Combination Displays, *IEEE Transactions on Visualization and Computer Graphics*, 12(1): 2-13, Jan. 2006.
19. T.K. Lee, **M.S. Atkins**, M. A King, S. Lau, and D.I. McLean. Counting moles automatically from back images. *IEEE Transactions on Biomedical Engineering*, 52(11): 1966-1969, Nov. 2005.

20. A. Moise, **M.S. Atkins** and R. Rohling. Evaluating different radiology workstation interaction techniques with radiologists and laypersons. *Journal of Digital Imaging*, 18(2): 116-130, June 2005.
21. A. Moise and **M.S. Atkins**. Designing better radiology workstations: impact of two user interfaces on interpretation errors and user satisfaction. *Journal of Digital Imaging*, 18(2): 109-115, June 2005.
22. A. Moise and **M.S. Atkins**. Design Requirements for Radiology Workstations. *Journal of Digital Imaging*, 17(2): 92-99, June 2004.
23. J. Orchard, C. Grief, G. Golub and **M.S. Atkins**. Simultaneous Registration and Activation Detection for fMRI. *IEEE Transactions on Medical Imaging*, 22(11): 1427-1435, Nov. 2003.
24. T.K. Lee, **M.S. Atkins**, and D.I. McLean. Describing the structural shape of melanocytic lesions. *Medical Image Analysis*, 7 (1): 47-64, March 2003.
25. A. Moise and **M.S. Atkins**. Radiology workstation design for the medical intensive care unit. *Journal of Digital Imaging*, 15:151-155, June 2002.
26. E. Chiu, J. Vaisey, and **M.S. Atkins**. Compression of medical images using space-frequency partitions, *IEEE Transactions on Information Technology in Biomedicine*, 5(4): 300-310, Dec. 2001.
27. J. van der Heyden, K. Inkpen, **M.S. Atkins**, and M.S.T. Carpendale. Exploring presentation methods for tomographic medical image viewing. *Artificial Intelligence in Medicine*, 22:89-109, Dec. 2001.
28. **M.S. Atkins** and B. Mackiewich. Fully automatic segmentation of the brain in MRI. *IEEE Transactions on Medical Imaging*, 17(1): 98-107, Feb. 1998.
29. C. Dykstra, R. Harrop, A.M. Celler, and **M.S. Atkins**. Quantitative 3D data extraction using contiguous volumes. *IEEE Transactions on Nuclear Science*, 44(4):1571-1577, August 1997.
30. T. Zuk and **M.S. Atkins**. A comparison of manual and automatic methods for registering scans of the head. *IEEE Transactions on Medical Imaging*, 15(5): 732:744, Oct. 1996.
31. B. Johnston, **M.S. Atkins**, B. Mackiewich, and M. Anderson. Segmentation of multiple sclerosis lesions in intensity corrected multispectral MRI. *IEEE Transactions on Medical Imaging*, 15(2): 154-169, April 1996.
32. M. Menke, **M.S. Atkins**, and K. Buckley. Compensation methods for head motion detected during PET scans. *IEEE Transactions on Nuclear Science*, 43(2): 310-317, February 1996.

33. U. Oelfke, G.K.Y. Lam, and **M.S. Atkins**. Proton dose monitoring with PET: Quantitative studies in lucite. *Physics in Medicine and Biology*, 41:177-196, January 1996.
34. J. S. Barney, R. Harrop, and **M.S. Atkins**. Addition of noise by scatter correction methods in PVI. *IEEE Transactions on Nuclear Science*, 41(4): 1551-1555, August 1994.
35. **M.S. Atkins** and Y.M. Coady. Adaptable Concurrency Control for Atomic Data Types. *ACM Transactions on Computer Systems*, 10(3): 190-225, Aug. 1992.
36. **M.S. Atkins**, Y. Chen, and F. Olariu. Overcoming Data Transfer Bottlenecks across SUN-Transputer Interfaces. *Computing Systems*, 5(2): 159-192, Spring, 1992.
37. **M.S. Atkins**, D. Murray, and R. Harrop. Use of Transputers in a 3-D Positron Emission Tomograph. *IEEE Transactions on Medical Imaging*, 10(3): 276-283, Sept. 1991.
38. J.G. Rogers, S. Stazyk, R. Harrop, C.J. Dykstra, J.S. Barney, **M.S. Atkins**, and P.E. Kinahan. Towards the Design of a Positron Volume Imaging (PVI) Camera. *IEEE Transactions on Nuclear Science*, 37(2): 789-794, April 1990.
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41. **M.S. Atkins**. Experiments in SR with different Upcall program structures. *ACM Transactions on Computer Systems (TOCS)*, 6(4): 365-392, Nov. 1988.
42. **M.S. Atkins** and R. Olsson. Performance of Multi-tasking and Synchronisation Mechanisms. *Software Practice and Experience*, 18(9): 879-895, Sept. 1988.
43. S. Chanson, K. Ravindran and **M.S. Atkins**. Performance Evaluation of the Transmission Control Protocol in a Local Area Network Environment. *INFOR (Canadian Journal of Operations Research and Information Processing) – Special issue on Performance Evaluation of Computer Systems*, (23)3: 275-293, Aug. 1985

44. **M.S. Atkins** and B. Knight. Experiences with coroutines in BCPL. *Software Practice and Experience*, 8(8): 765-768, Aug. 1983.
45. **M.S. Atkins**. A comparison of SIMULA and GPSS for simulating sparse traffic networks. *SIMULATION*, (34) 3: 93-100. March 1980.
46. **M.S. Atkins**. A case study on the use of Intervention Analysis applied to traffic accidents. *Journal Operational Research Society*, 30(7): 651-659, July 1979.
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Book and Book Chapters

48. M. Kwiatkowska, **M.S. Atkins**, N.T. Ayas, and C.F. Ryan. Integrating Medical Knowledge into Data Mining Process for the Creation of Clinical Prediction Rules: Application in the Diagnosis of Obstructive Sleep Apnea, Chapter in *Data Mining and Medical Knowledge Management*, edited by IGI Global, 2008.
49. **M.S. Atkins**, M. Nicolaou and G-Z Yang, Eye Monitoring Applications in Medicine. Chapter 15: pp. 323 – 346, in *Passive Eye Monitoring*, Springer-Verlag, Riad Hammoud, Ed. April 2008.
50. **M.S. Atkins**, Fully Automated Hybrid Segmentation of the Brain. Chapter 11, pp. 171-183 in *Handbook of Medical Imaging*, Academic Press, Oct. 2000.
51. *Transputer Research and Applications 6: Proceedings of NATUG-6*, edited by **M.S. Atkins** and A.S. Wagner, IOS Press, 1993 (355 pages).
52. **M.S. Atkins**. Software for simulation of transactions – flow based model. *Encyclopedia of Systems and Control*, Pergamon Press Ltd., 10 pages, 1985
53. **M.S. Atkins**. Transaction flow-based simulation modeling formalism.. *Encyclopedia of Systems and Control*, Pergamon Press Ltd., 10 pages, 1985

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(note that papers in the SPIE Medical Imaging conferences are accepted on the basis of a 2-4 page abstract).

54. S. El-Khakabi, P. Wighton, T.K. Lee and **M.S. Atkins**, Multi-level feature extraction for skin lesion segmentation in dermoscopic images. *SPIE Medical Imaging*, Vol. xxxx. Feb. 2012

55. M. Sadeghi, T.K. Lee, H. Lui, D. Mclean, and **M.S. Atkins**, Global Pattern Analysis and Classification of Dermoscopic Images Using Textons. *SPIE Medical Imaging*, Vol. xxxx. Feb. 2012
56. S. El-Khakabi, T.K. Lee and **M.S. Atkins**, Tree Structured Model of Skin Lesion Growth Pattern via Color Based Cluster Analysis, 2nd International Workshop on Medical Imaging and Augmented Reality, Machine Learning in Medical Imaging MLMI 2011, *Springer-Verlag Lecture Notes in Computer Science LNCS 7009*: 291-299, Sept. 2011
57. M. Sadeghi, T.K. Lee, H. Lui, D. Mclean, and **M.S. Atkins**, “Automated detection and analysis of dermoscopic structures on dermoscopy images”, 22nd *World Congress of Dermatology, Seoul, Korea*, 2011. (won Gold e-poster award).
58. S. El-Khakabi, T.K. Lee, D. McLean, H. Lui, and M.S. Atkins. Is border irregularity useful for melanoma diagnosis? *22nd World Congress of Dermatology*, Seoul, Korea, May 2011.
59. P. Wighton, H. Lui, D. McLean, M.S. Atkins and T.K. Lee. Learning from Dermoscopy Experts. *22nd World Congress of Dermatology*, Seoul, Korea, May 2011.
60. J. Gajewski and **M.S. Atkins**. Telemedicine on the Virtual Silk Highway: a project to improve pathology diagnosis. *Proceedings Asia Pacific Advanced Networking Conference, APAN, Hong Kong*, Feb. 2011.
61. G. Tien, B. Zheng and **M.S. Atkins**. Quantifying Surgeons’ Vigilance during Laparoscopic Operations Using Eyegaze Tracking. *Medicine Meets Virtual Reality, MMVR*, Feb. 2011
62. Y. Weldeselassie and **M.S. Atkins**. Shape Anisotropy: tensor distance to anisotropy measure. *SPIE Medical Imaging*, Vol. 7962-159, 1-8. Feb. 2011. Received Best Poster Award.
63. S.El-Hilo, Y. Weldeselassie and **M.S. Atkins**. Comparison between Fourth and Second Order DT-MR image Segmentations. *SPIE Medical Imaging*, Vol. 7962. Feb. 2011.
64. S.El-Hilo, Y. Weldeselassie and **M.S. Atkins**. DT-MR Image Segmentation Using the Random Walker Algorithm. *SPIE Medical Imaging*, Vol. 7962. Feb. 2011.
65. B. Zheng, K. Qayumi, G. Tien, **M. S. Atkins**, C. Swindells. Using eye-tracking to measure surgeon’s vigilance on patient condition during surgical procedures. *Presented at the 2nd annual Canada forum on patient safety and quality improvement*, Nov. 2010.
66. Y. Weldeselassie, A. Barmpoutis and **M.S. Atkins**. Symmetric Positive-Definite Cartesian Tensor Orientation Distribution Functions (CT-ODF). *Medical Image Computing and Computer Assisted Interventions – MICCAI 2010, Springer-Verlag Lecture Notes in Computer Science LNCS 6361*: 582-589, Sept. 2010.

67. M. Sadeghi, M. Razmara, P. Wighton, T.K. Lee and **M.S. Atkins**, “Modeling the Dermoscopic Structure Pigment Network Using a Clinically Inspired Feature Set”, 5th International Workshop on Medical Imaging and Augmented Reality, MIAR 2010, *Springer-Verlag Lecture Notes in Computer Science* LNCS 6326: 467-474, Sept. 2010.
68. G. Tien, B. Zheng, C. Swindells and **M.S. Atkins**. Measuring Situation Awareness of Surgeons in Laparoscopic Training. *Proceedings of Eye Tracking Research and Applications, ETRA 2010*, pp. 149-152, March 2010.
69. M. Sadeghi, M. Razmara, M. Ester, T.K. Lee and **M.S. Atkins**. Graph based pigment network detection in skin images. *SPIE-Medical Imaging 2010*, Vol. 7623, Feb. 2010.
70. N. H. Nguyen, T. K. Lee and **M.S. Atkins**. Segmentation of light and dark hair in dermoscopic images: a hybrid approach using a universal kernel. *SPIE-Medical Imaging 2010*, Vol. 7623, Feb. 2010.
71. P. Wighton, M. Sadeghi, T.K. Lee and **M.S. Atkins**. A fully automatic random walker segmentation for skin lesions in a supervised setting. *Medical Image Computing and Computer Assisted Interventions – MICCAI 2009, Springer-Verlag Lecture Notes in Computer Science* LNCS 5762: 1108-1115, Sept. 2009
72. Y. Weldelessie, G. Hamarneh, M.F. Beg and **M.S. Atkins**. Novel Decomposition of Tensor Distance into Shape and Orientation Dissimilarity Measures. *Medical Image Computing and Computer Assisted Interventions – MICCAI 2009, Springer-Verlag Lecture Notes in Computer Science, workshop*, Sept. 2009
73. Y. Tan, G.Tien, B.B. Forster and **M.S. Atkins**. Using eyegaze targeting to improve mouse pointing for radiology tasks. *Presented at the Society for Imaging Informatics in Medicine SIIM 2009, Charlotte, N. Carolina*, June 2009 (full paper in *Journal of Digital Imaging*).
74. Y. Tan, G.Tien, **M.S. Atkins** and B.B. Forster. Improving mouse pointing for radiology tasks. *Proceedings of the SPIE-Medical Imaging 2009*, Vol. 7263, Feb. 2009.
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78. P. Wighton, T.K. Lee and **M.S. Atkins**. Dermoscopic Hair Disocclusion using Inpainting. *Proceedings of the SPIE-Medical Imaging 2008*, Vol. 6914:691427 Feb. 2008.
79. P. Wighton, T.K. Lee and **M.S. Atkins**. Existence and Perception of Textural information predictive of atypical nevi. *Proceedings of the SPIE-Medical Imaging 2008*, Vol. 6917:69170H, Feb. 2008 (nominated for best paper award).
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90. M.K. Tory, **M.S. Atkins**, M. Nicolaou, G-Z Yang and A.E. Kirkpatrick, Eyegaze Analysis of Displays with Combined 2D and 3D Views, *IEEE Visualization 2005*, pp 519-526.
91. M. Kwiatkowska, **M.S. Atkins**, N. Ayas and F. Ryan. Telemedicine System for Early Assessment of Obstructive Sleep Apnea. *Proceedings IASTED Telehealth conference, Banff*, pp 147-151, July 2005
92. Dylan Tisdall and **M.S. Atkins**. MRI denoising via phase error estimation. *Proceedings of the SPIE-Medical Imaging 2005*, Vol. 5747:646-654, Feb. 2005.
93. **M.S. Atkins**, R. F. Janz, and W. Kaffenberger. The Virtual Silk Highway: a project to bridge the digital divide. *Invited Paper, IPSI Venice*, Nov. 2004
94. Mila Kwiatkowska and **M.S. Atkins** Case Representation and Retrieval in the Diagnosis and Treatment of Obstructive Sleep Apnea: A Semio-fuzzy Approach. *Proceedings European Case Based Reasoning Conference ECCBR 04 Workshop on CBR in the Health Sciences*, Madrid, Aug. 2004
95. Mila Kwiatkowska and **M.S. Atkins**, A Semio-Fuzzy Approach to Information Fusion in the Diagnosis of Obstructive Sleep Apnea, *Proceedings IEEE Fuzzy Logic conference, NAFIPS 04, Banff*, pp.680-685, June 2004.
96. Adrian Moise and **M.S. Atkins**. Designing better radiology workstations: impact of two user interfaces on interpretation errors and user satisfaction. *Proceedings of the Society for Computer Assisted Radiology, SCAR 2004*, May 2004 (extended article accepted for Journal of digital imaging, June 2005).
97. J.J. Orchard and **M.S. Atkins**. Solving for Motion and Activation Simultaneously in an fMRI Experiment with Multiple Stimulus Conditions. *Proceedings IEEE International Symposium on Biomedical Imaging, ISBI 2004*, Vol. 1: pp. 1000-1003, April 2004.

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99. Benjamin Law, **M.S. Atkins**, A. Kirkpatrick, Alan Lomax and Christine L. MacKenzie. Eye Gaze Patterns Differentiate Skill in a Virtual Laparoscopic Training Environment. *Proceedings of Eye Tracking Research and Applications, ETRA 2004*, pp. 41-47, March 2004
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101. Adrian Moise and **M.S. Atkins**. Interaction techniques for radiology workstations: impact on users' accuracy and productivity. *Proceedings of the SPIE-Medical Imaging 2004*, Vol. 5371:16-22, Feb. 2004.
102. J.J. Orchard and **M.S. Atkins**. Iterating Registration and Activation Detection to Overcome Activation Bias in fMRI Motion Estimates. *Medical Image Computing and Computer Assisted Interventions – MICCAI 2003, Springer-Verlag Lecture Notes in Computer Science*, LNCS 2879-II: 886-893, Nov. 2003.
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116. T. Lee and **M.S. Atkins**. A new shape measure for melanocytic lesions. *Proceedings Medical Image Understanding and Analysis*, London, England, July 2000, pp. 25-28.
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119. E. Chiu, J. Vaisey, and **M.S. Atkins**. Compression of ultrasound images using wavelet-based space-frequency partitions. *Proceedings of the SPIE-Medical Imaging 2000*, 3976:505-514 Feb 2000. (Won Best Poster Award).

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