

YUFENG ZHENG

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A. EDUCATION

2001-2005	Post-doc, Computer Science, University of Louisville (KY, USA)
1994-1997	Ph.D., Optical Engineering/Image Processing, Tianjin University (Tianjin, China)
1991-1994	M.S., Optical Engineering/Image Processing, Tianjin University (Tianjin, China)
1985-1989	B.S., Optical Engineering, Tianjin University (Tianjin, China)

B. POSITIONS AND HONORS

Positions

2006-	Assistant Professor (Tenure-track), Alcorn State University (ASU), Alcorn State, MS, USA
2001-2005	Post-doctoral Research Associate, University of Louisville, Louisville, KY, USA
1999-2001	CT Imaging Algorithm Senior Engineer, GE Hangwei Medical Systems Co. Ltd., Beijing, China
1997-1999	Sr. Software Engineer, Huawei Tech. Co., Beijing, China
1989-1991	Research Engineer, Changzhi Bearing Manufacturing Co., Shanxi, China

Honors

2011	Cisco Certified Network Professional (CCNP), CCNA ; CCNA Security
2010	Provisional/Utility Patent in Thermal Face Recognition (P.I., Alcorn State University)
2009	Certificate of the Highest Funded Grants (awarded by the Advanced Tech. Dept. at ASU)
2006-	(1) Senior Member of SPIE; (2) Member of IEEE; (3) Member of IEEE Computer Society
2003	Provisional Patent in Glaucoma Classification (P.I., University of Louisville)
2000-2001	Two "Night on Downtown Awards" by GE Medical Systems (Milwaukee, WI, USA)
1999	Certificated Senior Engineer in Computer Software Development by Beijing Government, China
1996	Outstanding Student Award for Excellence in Research and Publication (at Tianjin University)

Experience

2011	Invited Speaker of 6 th Annual Night Vision Systems Conference (Washington, DC) by IDGA.
2008	Invited Speaker of 7 th Annual Image Fusion Conference (Alexandria, VA) by IDGA.
2007-	Program Director of Computer Networking & Information Technology, Alcorn State University, MS.
2002-	Peer-reviewer of prestigious journals of SPIE, IEEE & Elsevier.
2000	Six-Sigma Green Belt certified by GE Medical Systems at Beijing, China

C. RESEARCH GRANTS

- USING ADVANCED IMAGE FUSION AND ADAPTIVE IMAGE COLORIZATION TO ENHANCE MULTISENSORY INPUT
DOD ARO (\$671,548) Yufeng Zheng (PI) 9/15/2008-9/14/2012
To enhance computer vision and human vision by multispectral image fusion and night vision colorization.
- A THERMAL FACE RECOGNITION SYSTEM FOR SECURITY APPLICATIONS - A NOVEL APPROACH BY FACE PATTERN WORDS
DHS (\$338,027) Yufeng Zheng (PI) 3/1/2010-8/31/2012
To develop a reliable thermal face recognition system for national security applications such as prevention against terrorism, especially at nighttime.
- DEVELOPMENT OF A KNOWLEDGE BASE TO SUPPORT DETECTION AND DIAGNOSIS AND RESEARCH IN MAMMOGRAPHY
DOD TATRC (\$2.4M) Yufeng Zheng (Co-PI) 9/15/2006-5/31/2011
To detect breast cancers using digitized mammograms at their early stages.

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D. RESEARCH INTERESTS

- Pattern recognition
- Bio-inspired image analysis
- Information fusion
- Biometrics
- Computer vision
- Computer-aided diagnosis

E. TEACHING EXPERIENCE

- Computer Graphics
- Digital Image Processing
- Data Structures and Algorithms
- Physics for Medical Imaging
- Networking Fundamentals & Telecommunication
- Switching and Routing Basics
- WAN Technologies
- Biomedical Computing
- C# Network Programming
- Server Configuration and Administration

F. SELECTED PEER-REVIEWED PUBLICATIONS

Book

1. Yufeng Zheng, "[Image Fusion and Its Applications](#)", ISBN 978-953-307-173-2, June 2011.

Book Chapters

1. Yufeng Zheng, "An Exploration of Color Fusion with Multispectral Images for Night Vision Enhancement", Image Fusion and Its Applications, ISBN 978-953-307-173-2, June 2011.
2. Gang Hu, Yufeng Zheng, Xin-qiang Qin, "Image Fusion based on integer lifting wavelet transform", Image Fusion and Its Applications, ISBN 978-953-307-173-2, June 2011.
3. Yufeng Zheng, "[Iterative Multiscale Fusion and Night Vision Colorization of Multispectral Images](#)", Sensor Fusion and its Applications, pp.455-474, ISBN 978-953-307-101-5, 2010.
4. EA Essock, P Gunvant and Yufeng Zheng, "Nerve Fiber Analyzer GDx Progression", Optic Nerve Head and Retinal Nerve Fiber Analysis, Edited by Lester M, Garway-Heath D, Lemij H; Savona, Dogma. ISBN 88-87434-30-1, pp.111-113, 2005.

Journal Papers

1. Yufeng Zheng, "Orientation-based face recognition using multispectral imagery and score fusion", (to appear in) Optical Engineering, November 2011.
2. Yufeng Zheng, "[Breast Cancer Detection with Gabor Features from Digital Mammograms](#)", Algorithms 2010, Vol. 3, pp.44-62, 2010.
3. Fengmei Zou, Yufeng Zheng, Zhengdong Zhou, and Kwabena Agyepong, "Gradient Vector Flow Fields and Spiculated Mass Detection in Digital Mammography Images", Digital Mammography, Lecture Notes in Computer Science, pp.299-306, Springer Berlin / Heidelberg, Volume 5116 (2008).
4. Yufeng Zheng and Edward A. Essock, "A local-coloring method for night-vision colorization utilizing image segmentation, segment recognition, histogram matching and image fusion", Information Fusion, Vol. 9, No. 2, pp.186-199 (2008).
5. Gunvant, Pinakin; Zheng, Yufeng; Toth, Marta; Hollo, Gabor, Atypical Retardation Pattern: Can Performance of Classification be Improved?, Optometry & Vision Science. 85(6):E482-E488, June 2008.
6. Pinakin Gunvant, Yufeng Zheng, Edward A. Essock, et. al., "Application of Shape-based Analysis Methods to OCT Retinal Nerve Fiber Layer Data in Glaucoma", Journal of Glaucoma, 16(6):543-548 (2007).
7. Edward A. Essock, Pinakin Gunvant, Yufeng Zheng, "Predicting Visual Field Loss In Ocular Hypertensive Patients Using Wavelet-Fourier Analysis Of GDx Scanning Laser Polarimetry", Optometry and Vision Science, VOL. 84, NO. 5, PP. E380-E386 (2007).
8. Yufeng Zheng, Edward A. Essock, Bruce C. Hansen and Andrew M. Haun, "A new metric based on extended spatial frequency and its application to DWT based fusion algorithms", Information Fusion, Vol. 8, No. 2, April 2007.
9. Edward A. Essock, Yufeng Zheng, Pinakin Gunvant, "Analysis of GDx-VCC Polarimetry Data by Wavelet-Fourier Analysis (WFA) Across Glaucoma Stage", IOVS, Vol. 46, No. 8, pp.2838-2847, August 2005.

10. Yufeng Zheng, Edward A. Essock and Bruce C. Hansen, "An advanced DWT fusion algorithm and its optimization by using the metric of image quality index", *Optical Engineering*, Vol.44, No.3, Mar 2005.
11. Pinakin Guntant, Yufeng Zheng, Edward A. Essock, et. al., "Predicting Subsequent Visual Field Loss in Subjects with Disc Hemorrhage using RNFL Polarimetry", *Journal of Glaucoma*, Vol.14, No.1, Jan 2005.
12. Yufeng Zheng, Mark P. Wachowiak, and Adel S. Elmaghraby, "Resolution improvement and detail enhancement for CT scout images", *Journal of Electronic Imaging*, Vol.14, No.1, Jan 2005.
13. Mark P. Wachowiak, Renata Smolíková, Yufeng Zheng, Jacek M. Zurada, and Adel S. Elmaghraby, "An Approach to Multimodal Biomedical Image Registration Utilizing Particle Swarm Optimization", *IEEE Transactions on Evolutionary Computation*, Vol. 8, No. 3, pp.289-301, June 2004.
14. Bruce C. Hansen, Edward A. Essock, Yufeng Zheng and J. Kevin DeFord, "Perceptual Anisotropies in Visual Processing and Their Relation to Natural Image Statistics", *Network: Computation in Neural Systems*, 14 (2003) 501-526, June 2003.
15. Daoyin Yu, Yufeng Zheng, Wei Yu, and Qingguo Geng, "Study on Echocardiographic Quantitative Analysis", *Chinese Journal of Biomedical Engineering*, Vol. 18 No. 3, September 1999.
16. Daoyin Yu, Qunfeng Zou, Wei Yu and Yufeng Zheng, "Image Connection and Its Application to Medical Ultrasonic Image", *Chinese Journal of Biomedical Engineering*, Vol. 17 No. 3, September 1998.
17. Daoyin Yu and Yufeng Zheng, "Precise Boundary Extraction of Echocardiographic Left-Ventricle Images", *Chinese Journal of Biomedical Engineering*, Vol. 15 No. 4, December 1996.
18. Yufeng Zheng, "Displaying a True Color Bitmap Image on a TVGA Card", *Application of the Computer Systems*, December 1996.
19. Yufeng Zheng and Daoyin Yu, "The Visual Design of Image Processing in DOS Environment", *Microcomputer & Its Applications*, September 1996.
20. Wenyao Liu and Yufeng Zheng, "The Light Scattering Analysis System on Line", *Chinese Journal of Scientific Instrument*, Vol. 17 No. 1, Jan. 1996.
21. Yufeng Zheng, "Implementing Full-screen Animation on a TVGA Card", *PC World China*, September 1995.

Conference Papers

1. Dan Shen, Genshe Chen, and Yufeng Zheng, "Game theoretic approach to similarity based image segmentation", "Signal and Data Processing of Small Targets 2011" conference, SPIE Optical Engineering + Applications, 21-25 August 2011, San Diego, United States.
2. Yufeng Zheng, "A channel-based color fusion technique using multispectral images for night vision enhancement", "Applications of Digital Image Processing XXXIV" conference, SPIE Optical Engineering + Applications, 21-25 August 2011, San Diego, United States.
3. Yufeng Zheng, "An Orientation-based Face Recognition Algorithm", The IASTED International Conference on Computer Vision 2011, June 1 - 3, 2011, Vancouver, BC, Canada.
4. Yufeng Zheng, "A Hidden Markov Model for Multimodal Biometrics Score Fusion", "Multisensor, Multisource Information Fusion: Architectures, Algorithms, and Applications 2011" Conference, SPIE Defense, Security, and Sensing, 25-29 April 2011, Orlando, United States.
5. Yufeng Zheng, "A Novel Orientation Code for Face Recognition", "Visual Information Processing XX" Conference, SPIE Defense, Security, and Sensing, 25-29 April 2011, Orlando, United States.
6. Yufeng Zheng, "A Novel Thermal Face Recognition Approach Using Face Pattern Words", *Proc. SPIE*, Vol. 7667, 766703 (2010), Orlando, USA.
7. Yufeng Zheng, "An orientation-based fusion algorithm for multisensor image fusion", *Proc. SPIE*, Vol. 7710, 77100K (2010), Orlando, USA.
8. Yufeng Zheng, "Multi-scale Fusion Algorithm Comparisons: Pyramid, DWT and Iterative DWT", 12th International Conference on Information Fusion, pp. 1060-1067, Seattle, USA, 2009.
9. Yufeng Zheng and Kwabena Agyepong, "Component-based target recognition inspired by human vision", *Proc. SPIE*, Vol. 7335, 73350V (2009).
10. Yufeng Zheng, "Bio-inspired color image enhancement model", *Proc. SPIE*, Vol. 7341, 73410D (2009).
11. Fengmei Zou, Yufeng Zheng, Zhengdong Zhou, and Kwabena Agyepong, "Gradient Vector Flow Field and Mass Region Extraction in Digital Mammograms", 2008 21st IEEE International Symposium on Computer-Based Medical Systems, pp. 41-43 (CBMS 2008).
12. Yufeng Zheng, "Gaussian model-based statistical matching for image enhancement and segmentation," *Visual Information Processing XVII. Proceedings of the SPIE*, Vol. 6978, pp. 697802-1-697802-11 (2008).
13. Yufeng Zheng, Kwabena Agyepong, and Ognjen Kuljaca, "Multisensory data exploitation using advanced image

- fusion and adaptive colorization”, Signal Processing, Sensor Fusion, and Target Recognition XVII. Proc. SPIE, Vol. 6968, pp. 69681U-69681U-12 (2008).
14. Yufeng Zheng and Kwabena Agyepong , “Mass Detection with Digitized Screening Mammograms by Using Gabor Features”, Proceedings of the SPIE, Vol. 6514, pp.651402-1-12 (2007).
 15. Yufeng Zheng, Adel Elmaghraby and Hichem Frigui, “Three-band MRI image fusion utilizing the wavelet-based method optimized with two quantitative fusion metrics”, Proc. SPIE, Vol. 6144, pp. 61440R-1-61440R-12 (2006).
 16. Yufeng Zheng, Bruce C. Hansen, Andrew M. Haun and Edward A. Essock, “Coloring Night-vision Imagery with Statistical Properties of Natural Colors by Using Image Segmentation and Histogram Matching”, Proc. SPIE, Vol. 5667, pp. 107-117 (2005).
 17. Yufeng Zheng, Edward A. Essock and Bruce C. Hansen, “An Advanced Image Fusion Algorithm Based on Wavelet Transform – Incorporation with PCA and Morphological Processing”, Proc. SPIE, Vol. 5298, pp. 177-187 (2004).
 18. Yufeng Zheng and Edward A. Essock, “A Novel Feature Extraction Method – Wavelet-Fourier Analysis and Its Application to Glaucoma Classification”, Proceedings of 7th Joint Conference on Information Sciences, pp. 672-675, Cary, North Carolina, September, 2003.
 19. Yufeng Zheng, Xiaohui Cui, Mark P. Wachowiak, and Adel S. Elmaghraby, “CT Scout Z-resolution Improvement with Image Restoration Methods”, Proc. SPIE Int. Soc. Opt. Eng. 5032, 1851 (2003), (SPIE Medical Imaging Conference,) San Diego, 2003.
 20. Yufeng Zheng, Ji Du, Long Qi and Daoyin Yu, “Echocardiographic Visual Processing and Quantitative Analysis”, Proc. SPIE, Vol. 2866, pp.46-49, International Conference on Holography and Optical Information, Nanjing, China, 1996.

G. PROFESSIONAL SERVICE AND DEVELOPMENT

Professional Service

- 2011 Technical Program Committee [of SPIE Defense, Security and Sensing Conference 2012](#)
- 2011- SPIE Visiting Lecturer (<http://spie.org/x47500.xml>)
- Jan 2011 Sponsor of the “Image Analysis Workshop” held at Alcorn State University
- Oct. 2010 Book Editor of "Image Fusion", ISBN: 978-953-307-173-2.
- Jan 2008 Technical Program Committee for ISCC'08 (13th IEEE Symposium on Computers and Communications)
- 2007- Program Director of Computer Networking & Information Technology, Department of Advanced Technologies, Alcorn State University, MS.
- 2007- Director of Pattern Recognition and Imaging Analysis Lab, Alcorn State University, MS.
- 2006- Adjunct Faculty, Department of Computer Science, Alcorn State University, MS.
- 2002- Reviewer of journals of SPIE, IEEE, ACM, and Elsevier.

Invited Presentations

- 12/12/2011 “An exploration of multiscale image fusion methods and their applications”, (will present to) the IDGA’s 10th Annual Image Fusion, Washington, DC
- 7/25/2011 “A Fast Color Fusion Method for Night Vision Enhancement”, presented to the 6th Annual Night Vision Systems Conference (IDGA), Washington, DC.
- 11/13/2010 “Advances in Digital Image Processing”, presented to high school students, Saturday Science Academy, Alcorn State University, Lorman, MS.
- 9/3/2010 “A Novel Thermal Face Recognition Approach Based on Orientation Code”, presented to the Graduate Seminar, University of Louisville, Louisville, KY.
- 6/19/2010 “Breast Cancer Detection with Gabor Features”, presented to the College Graduate Seminar, Tianjin University, Tianjin, China.
- 5/11/2010 “Multisensory Data Exploitation Using Advanced Image Fusion and Adaptive Colorization”, presented to the DoD Program Mini-Workshop, University of Texas-Pan American, Edinburg, TX.
- 4/30/2010 “A Novel Thermal Face Recognition Approach”, presented to the Graduate Seminar, The University of Southern Mississippi, Hattiesburg, MS.
- 11/21/2008 “Multisensory Image Fusion and Night Vision Colorization”, presented to the 7th Annual Image

Fusion Conference (IDGA), Alexandria, VA.

- 10/21/2005 “Night-vision Colorization Utilizing Image Segmentation, Classification and Histogram Matching”, presented to the Graduate Seminar, University of Louisville, Louisville, KY
- 3/14/2004 “A Wavelet-Fourier Analysis Method for Glaucoma Detection using GDx-VCC Polarimetry Data”, presented to the Graduate Seminar, University of Louisville, Louisville, KY
- 1/11/2002 “Image Restoration Application in CT Imaging – Scout z-Resolution Improvement and Off-Focal Radiation Correction”, presented to the Graduate Seminar, University of Louisville, Louisville, KY

Professional Development

- 11/16/2009 “The USDA-CSREES Grantsmanship Workshops”, Arlington, VA.
- 2/9/2007 “The NSF Faculty Early Career (CAREER) Development Proposal Workshop”, Las Vegas, NV
- 10/27/2006 “The NSF Major Research Instrumentation (MRI) Workshop”, Baltimore, MD.
- Fall 2004 *Visual Processes*, graduate course taken at University of Louisville
- Spring 2004 *Advanced Statistics II*, graduate course taken at University of Louisville
- Fall 2003 *Advanced Statistics I*, graduate course taken at University of Louisville
- Spring 2002 *Artificial Intelligence*, graduate course taken at University of Louisville