

ROBERT TAMBURO

Curriculum Vitae

BIOGRAPHICAL

Redacted for online distribution

EDUCATION

Doctor of Philosophy *2002 - 2006*

University of Pittsburgh

Department of Bioengineering

Pittsburgh, PA

Dissertation Title: Feature-Based Correspondences to Infer the Location of Anatomical Landmarks

Dissertation URL: <http://etd.library.pitt.edu/ETD/available/etd-05052006-134756>

Committee: George Stetten (chair), Ching-Chung Li, J. R. Boston, and Fernando Boada

Master of Science *1995 - 2002*

University of Pittsburgh

Department of Bioengineering

Pittsburgh, PA

Dissertation Title: Gradient-Oriented Boundary Profiles for Shape Analysis Using Medial Features

Dissertation URL: <http://etd.library.pitt.edu/ETD/available/etd-12082002-204455>

Committee: George Stetten (chair), Ching-Chung Li, and Robert Sclabassi

Bachelor of Science *1995 - 1999*

Delaware State University

Department of Physics and Pre-Engineering

Dover, DE

Degrees: Dual B.S. in Physics with Engineering Emphasis, and Mathematics

Honors: Summa Cum Laude

RESEARCH EXPERIENCE

Project Scientist *September 2011 - Present*

Carnegie Mellon University

Pittsburgh, PA

Research Fellow *June 2010 - August 2011*

Intel Labs

Pittsburgh, PA

Research Principal *June 2009 - May 2010*

University of Pittsburgh Medical Center

Pittsburgh, PA

Post-Doctoral Fellow *May 2006 - May 2009*

Department of Psychiatry

University of Pittsburgh

Pittsburgh, PA

INTERNSHIPS

Department of Biomedical Engineering

Summer 1998

University of Virginia

Charlotte, VA

Research: The vasculature in the abdominal skin flap of a rat was mathematically modeled
Principal Investigator: Thomas Skalak

Department of Biomedical Engineering

Summer 1997

Mayo Graduate School

Rochester, MN

Research: Segmentation and rendering of the Visible Human Male and Female paranasal sinuses

Principal Investigator: Richard Robb

Department of Physics

Summer 1996

University of Delaware

Newark, DE

Research: The effects of magnetic annealing on Nd-Fe-Co-B compounds was investigated

Principal Investigator: George C. Hadjipanayis

TEACHING EXPERIENCE

Guest Lecturer

Spring 2005

University of Pittsburgh

Course: Methods in Image Analysis

Lecture Title: Medial Correspondence to Infer Landmark Location

Instructors: George Stetten, Damion Shelton, and Aaron Cois

Guest Lecturer

Spring 2004

University of Pittsburgh

Course: Methods in Image Analysis

Lecture Title: Past and Present Graduate Research

Instructors: George Stetten, Damion Shelton, Yanxi Liu, Jonas August, and Owen Carmichael

Teaching Assistant

Spring 2002

University of Pittsburgh

Course: Bio-Instrumentation

Instructor: David Brienza

AWARDS AND ACHIEVEMENTS

- 10 Most Promising Technologies - Car and Driver (2013)
- Six New Car Technologies That Will Simplify Your Life - Edmunds (2013)
- Summer Research Institute in Geriatric Psychiatry (2007)
- National Institutes of Mental Health Post-Doctoral Fellowship (2006)
- School of Engineering Outstanding Teaching Assistant Award (2002)
- United States Achievement Academy National Award
- National Collegiate Natural Sciences Award
- MARC Highest Achievement Award
- MARC Honor Scholarship
- Luna I. Mishoe Academic Scholarship
- Dean's List During Tenure at DSU
- National Honor Society

- DSU Academic Scholarship
- National Dean's List
- Physics Department Achievement Scholarship

PROFESSIONAL INVOLVEMENT

- Internal review of grants
- Review of conference proceedings and scientific journals
- Institute of Electrical and Electronics Engineers (IEEE) Membership (2007 - 2009)
- IEEE Engineering in Medicine and Biology Society Membership (2007 - 2009)
- Engineers for a Sustainable World National Chapter Membership (2006-2007)
- Engineers for a Sustainable World University of Pittsburgh Chapter Membership (2006-2007)

TECHNICAL SKILLS

Operating Systems:	Mac OS X, Windows 98/2000/XP/7, Linux (Ubuntu)
Programming Skills:	C/C++, HTML, HTML5, CSS, L ^A T _E X, Shell scripting, Javascript, PHP
Programming Related Tools:	Cygwin, MinGW, gcc, Borland, Matlab, Microsoft Visual Studio, VTK, FLTK, Paraview CMake, CVS, SVN, Doxygen, git
Image Analysis Software:	ITK, AIR, SPM, AFNI, FSL, ImageJ, OsiriX, Slicer, ITK-SNAP, MIPAV, OpenCV, IPP
Other:	Microsoft Office Suite, Adobe Acrobat, Photoshop, Illustrator, SPSS, JMP, Macromedia Flash, Dreamweaver

REFEREED ARTICLES

Y. Wang, J. Zhang, B. Gutman, T. F. Chan, J. T. Becker, H. J. Aizenstein, O. L. Lopez, **R. Tamburo**, A. W. Toga, P. M. Thompson. Multivariate tensor-based morphometry on surfaces: Application to mapping ventricular abnormalities in HIV/AIDS. *NeuroImage*, 49(3):2141-2157, 2010.

A. Cois, J. Galeotti, **R. Tamburo**, M. Sacks, G. Stetten. Shells and spheres: An n-Dimensional framework for medial-based image segmentation. *International Journal of Biomedical Imaging*, 2010.

M. Wu, C. Andreescu, M. A. Butters, **R. Tamburo**, C. F. Reynolds III, H. Aizenstein. Resting state connectivity and white matter burden in late-life depression. *American Journal of Psychiatry*, under review, 2009.

R. J. Tamburo, G. J. Siegle, G. D. Stetten, C. A. Cois, M. A. Butters, and H. J. Aizenstein. Amygdalae morphometry in late-life depression. *International Journal of Geriatric Psychiatry*, 24(8):837-846, 2009.

R. Tamburo. Feature-Based Correspondences to Infer the Location of Anatomical Landmarks. Doctoral Dissertation, University of Pittsburgh, 2006.

G. Stetten, C. A. Cois, W. Chang, D. Shelton, **R. Tamburo**, J. Castellucci, and O. von Ramm. C-mode Virtual Image Display for a Matrix Array Ultrasound Sonic Flashlight. *Academic Radiology*, 12(5):535-543, 2005.

G. Stetten, D. Shelton, W. Chang, **R. Tamburo**, V. Chib, A. Cois, R. Hollis, A. Rizzi, L. Lobes, and D. Schwartzman. Progress Towards a Clinically Useful Sonic Flashlight. *Academic Radiology*, Po-topic IV-16, 10(8):959, 2003.

R. Tamburo. Gradient-Oriented Boundary Profiles for Shape Analysis Using Medial Features. Master's

thesis, University of Pittsburgh, 2002.

W. Chang, G. Stetten, L. Lobes, D. Shelton, and **R. Tamburo**. Guidance of Retrobulbar Injection with Real Time Tomographic Reflection. *Journal of Ultrasound in Medicine*, 21:1131-1135, 2002.

R. Tamburo and G. Stetten. Gradient-Oriented Profiles for Automated Unsupervised Boundary Classification and Their Application to Core Atoms Towards Shape Analysis. *International Journal of Image and Graphics*, 1(4):659-680, 2001.

G. Stetten and **R. Tamburo**. Real-Time 3D Ultrasound Methods for Shape Analysis and Visualization. *Methods: Special Issue on Real-Time Signal Processing in the Neurosciences*, 25(2):213-222, 2001.

CONFERENCE PROCEEDINGS

Robert Tamburo, Eriko Nurvitadhi, Abhishek Chugh, Mei Chen, Anthony Rowe, Takeo Kanade, Srinivasa G. Narasimhan. Programmable Automotive Headlights. *European Conference on Computer Vision*. 2014. *Accepted as Oral Presentation*.

Raoul de Charette, Robert Tamburo, Peter Barnum, Anthony Rowe, Takeo Kanade and Srinivasa G. Narasimhan. Fast Reactive Illumination through Rain and Snow. IEEE International Conference on Computational Photography (ICCP), April 2012. Best Paper Honorable Mention Award.

R. J Tamburo, S.-G. Kim, T. J. Huppert, A. B. Douaihy, D. M. Martineck, H. J. Aizenstein, J. T. Becker. Cerebral Vascular Response to Hypercapnia for Middle-Aged Males with HIV. *Human Brain Mapping*, Barcelona, Spain. 2010.

R. J Tamburo, S.-G. Kim, A. B. Douaihy, J. T. Becker. Cerebral Blood Flow as a Function of PASL Imaging Parameters. *Human Brain Mapping*, Barcelona, Spain. 2010.

M. Wu, **R. Tamburo**, M. Butters, C. F. Reynolds III, H. J. Aizenstein. Resting State fMRI in Geriatric Depression Before and After Treatment. *International Society for Magnetic Resonance in Medicine*, Toronto, Canada. 2008.

R. Tamburo, G. Siegle, G. Stetten, C. A. Cois, K. Rockot, J. Galeotti, C. Reynolds III, H. Aizenstein. Localizing Amygdala Structure Differences in Late-Life Depression. In *International Symposium on Biomedical Imaging*, Washington, D.C., 2007. IEEE Computer Society.

C. A. Cois, K. Rockot, J. Galeotti, **R. Tamburo**, D. Gottlieb, J. E. Mayer, A. Powell, M. Sacks, G. Stetten. Automated Segmentation of the Right Heart Using an Optimized Shells and Spheres Algorithm. In *International Symposium on Biomedical Imaging*, Washington, D.C., 2007. IEEE Computer Society.

M. Wu, **R. Tamburo**, M. Butters, C. F. Reynolds III, H. J. Aizenstein. Default-Mode Network Activity in Elderly Depression. *Society for Neuroscience*, San Diego, CA. 2007.

P. Dutta, M. Wu, **R. Tamburo**, M. Butters, C. F. Reynolds III, H. J. Aizenstein. Tensor-Based Morphometry and Classifier Algorithms for the Identification of Structural Brain Changes in Geriatric Depression. *International Society for Magnetic Resonance in Medicine*, Berlin, Germany, May 19-25, 2007.

M. Wu, **R. Tamburo**, G. Siegle, H. J. Aizenstein. Extracting the Resting-State BOLD Signal From an Event-Related fMRI Study. *International Society for Magnetic Resonance in Medicine*, Berlin, Germany, May 19-25, 2007.

R. Tamburo, C. A. Cois, D. Shelton, and G. Stetten. Novel method to automatically identify medial

node correspondences between two images. In J M Fitzpatrick and M Sonka, editors, Medical Imaging 2004: Image Processing, volume 5370, pages 1225?1235, San Diego, 2004. Proceedings of SPIE.

R. Tamburo, A. Cois, D. Shelton, and G. Stetten. Medial Node Correspondances Towards Automated Registration. In Gee, Maintz, and Vannier, editors, WBIR, pages 339?348, Philadelphia, 2003. Lecture Notes in Computer Science.

G. Stetten, C. A. Cois, W. Chang, D. Shelton, **R. Tamburo**, J. Castellucci, and O. von Ramm. C-mode Virtual Image Display for a Matrix Array Ultrasound Sonic Flashlight. In Medical Image Computing and Computer-Assisted Intervention, volume 2879, pages 336?343, Toronto, 2003. Lecture Notes in Computer Science.

?

G. Stetten, D. Shelton, W. Chang, V. Chib, **R. Tamburo**, D. Hildebrand, L. Lobes, and J. Sumkin. Towards a Clinically Useful Sonic Flashlight. In International Symposium on Biomedical Imaging, pages 417?420, Washington, D.C., 2002. IEEE Computer Society.

G. Stetten, V. Chib, and **R. Tamburo**. System for Location-Merging Ultrasound Images with Human Vision. In Applied Imagery Pattern Recognition (AIPR) Workshop, pages 200?205, Washington, DC, 2000. IEEE Computer Society.

R. Tamburo and G. Stetten. Gradient Oriented Profiles for Unsupervised Boundary Classification. In Applied Imagery Pattern Recognition (AIPR) Workshop, pages 206?212, Washington, DC, 2000. IEEE Computer Society.

ABSTRACTS

R. Tamburo, G. Siegle, G. Stetten, C. A. Cois, K. Rockot, J. Galeotti, C. Reynolds III, H. Aizenstein. Localizing Amygdala Structure Differences in Late-Life Depression. In University of Pittsburgh Data and Dine Symposium, Pittsburgh, PA, 2007.

M. Wu, **R. Tamburo**, G. Siegle, H. J. Aizenstein. Extracting the Resting-State BOLD Signal From an Event-Related fMRI Study. International Society for Magnetic Resonance in Medicine, In press, Berlin, Germany, May 19?25, 2007.

P. Dutta, M. Wu, **R. Tamburo**, M. Butters, C. F. Reynolds III, H. J. Aizenstein. Tensor-based Morphometry and Classifier Algorithms for the Identification of Structural Brain Changes in Geriatric Depression. International Society for Magnetic Resonance in Medicine, In press, Berlin, Germany, May 19?25, 2007.

R. Tamburo, G. Siegle, G. Stetten, C. A. Cois, C. Reynolds III, H. Aizenstein. Amygdala Shape Morphometry in Late-Life Depression. Celebrating Research on Aging: Building Collaborations for the Future, University of Pittsburgh, October 17, 2006.

R. Tamburo, G. Siegle, G. Stetten, C. A. Cois, C. Reynolds III, H. Aizenstein. Amygdala Shape Morphometry in Late-Life Depression. Science2006, University of Pittsburgh, October 5?6, 2006.

G. Stetten, D. Shelton, W. Chang, **R. Tamburo**, V. Chib, C. A Cois, R. Hollis, A. Rizzi, L Lobes, and D Schwartzman. Progress Towards a Clinically Useful Sonic Flashlight, 2003.

INVITED PRESENTATIONS

Robert Tamburo, Srinivasa G. Narasimhan, Anthony Rowe, Takeo Kanade, Eriko Nurvitadhi, Mei Chen. DMDs for Smart Headlights (invited talk and paper), Emerging Digital Micromirror Device Based Systems and Applications VI, SPIE 2014.

R. Tamburo, G. Siegle, G. Stetten, C. A. Cois, K. Rockot, J. Galeotti, C. Reynolds III, H. Aizenstein. Localizing Amygdala Structure Differences in Late-Life Depression. In University of Pittsburgh Data and Dine Symposium, Pittsburgh, PA, 2007.

R. Tamburo, G. Siegle, G. Stetten, C. A. Cois, C. Reynolds III, H. Aizenstein. Amygdala Shape Morphometry in Late-Life Depression. Celebrating Research on Aging: Building Collaborations for the Future, University of Pittsburgh, October 17, 2006.

??

R. Tamburo, G. Siegle, G. Stetten, C. A. Cois, C. Reynolds III, H. Aizenstein. Amygdala Shape Morphometry in Late-Life Depression. Science2006, University of Pittsburgh, October 5?6, 2006.

R. Tamburo. Medial-Based Feature Correspondences. CMU Statistics Department Imaging Group Meeting, 2005.

R. Tamburo. Medial-Based Feature Correspondences. CMU VASC Retreat, Flintstone, Maryland, August 4?6, 2003.

G. Stetten, **R. Tamburo**, J. Galeotti, W. Chang, D. Shelton, and D. Sahn. Real Time 3D Echocardiographic Data with Semi-Automated Boundary Tracking Algorithms. Meeting of the NLM Insight Toolkit Consortium, Philadelphia, Feb 6, 2003.

D. Shelton, W. Chang, and **R. Tamburo**. Ultrasound Visualization With the Sonic Flashlight. SIGGRAPH, 29th International Conference on Computer Graphics and Interactive Techniques, San Antonio, July 2002.

R. Tamburo and G. Stetten. Gradient-Oriented Profiles for Unclassified Boundary Detection. Applied Imagery and Pattern Recognition Workshop, Cosmos Club, Washington D.C., October 17, 2000.

G. Stetten, V. Chib, and **R. Tamburo**. System for location-merging ultrasound images with human vision. Applied Imagery and Pattern Recognition Workshop, Cosmos Club, Washington D.C., October 17, 2000.

G. Stetten, V. Pitiyanuvath, **R. Tamburo**, and A. Cois. Java Standards Emulation (JSE): A New Internal GUI for C++. NLM insight Software Consortium, Core Developers Meeting, June 22, 2000.

G. Stetten, W. Portnoy, A. Cois, and **R. Tamburo**. Medial Morphogenesis of Shapes Using Medial Node Models. NLM Insight Software Consortium, Core Developers Meeting, Washington D.C., 2000.

R. Tamburo. Quantitative Model and Simulation of the Vasculature in the Abdominal Skin Flap of a Rat. National Minority Research Symposium, New York City, NY., 1998.

R. Tamburo. Quantitative Model and Simulation of the Vasculature in the Abdominal Skin Flap of a Rat. Annual Meeting for The American Society for Biochemistry and Molecular Biology, Washington, D.C., 1998.

R. Tamburo. Segmentation of the Paranasal Sinuses in the Visible Human Dataset. National Minority Research Symposium,, New Orleans, LA., 1997.

R. Tamburo. The Affects of Magnetic Annealing on Nd-Fe-Co-B. Delaware State University Honor's Day, Dover, Delaware, 1996.

R. Tamburo. The Affects of Magnetic Annealing on Nd-Fe-Co-B. National Minority Research Symposium, Miami, FL, 1996.

TECHNICAL REPORTS

R. Tamburo, J. Becker, G. Siegle, M. Butters, C. Reynolds, H. J. Aizenstein. The Effects of Amygdalar Size Normalization on Group Analysis in Late-Life Depression, 2012. Available online at <http://d-scholarship.pitt.edu/11228/>.

R. Tamburo. RGB Image Color Space Transformations. The Insight Journal, July - December, 2010. Available online at <http://www.insight-journal.org/browse/publication/780>.

R. Tamburo. Variance Image Filter. The Insight Journal, July - December, 2010. Available online at <http://www.insight-journal.org/browse/publication/779>.

R. Tamburo. Entropy Image Filter. The Insight Journal, July - December, 2010. Available online at <http://www.insight-journal.org/browse/publication/781>.

R. Tamburo. New Features for MinimumMaximumImageCalculator. The Insight Journal, July - December, 2010. Available online at <http://www.insight-journal.org/browse/publication/783>.

R. Tamburo. Orthogonal Bisection of an Image. The Insight Journal, July - December, 2006. Available online at <http://www.insight-journal.org/browse/publication/126>.

R. Tamburo. itkMultipleUnlabeledImagesToLabeledImageFilter. The Insight Journal, July - December, 2006. Available online at <http://www.insight-journal.org/browse/publication/127>.

C. A. Cois, K. Rockot, J. Galeotti, **R. J. Tamburo**, and G. D. Stetten Shells and Spheres: A Framework for Variable Scale Statistical Image Analysis. Technical Report, Carnegie Mellon University, CMU-RI-TR-04-19, 2006. Available online at https://www.ri.cmu.edu/publication_view.html?pub_id=5401.

D. Wang, **R. Tamburo**, and G. Stetten Cumulative Gaussian Curve Fitter for Boundary Parameterization. Special issue for MICCAI 2005 Workshop on Open-Source Software, published online in The Insight Journal, 2005. Available online at <http://www.insight-journal.org/browse/publication/37>.

BOOK CHAPTERS

R. Tamburo. Chapter 5. Software Packages for Neuroimaging Processing in The Handbook of Neuroimaging in Geriatric Mental Health. H. J. Aizenstein, C. F. Reynolds, M. Fernandes, New York: Springfield Publishing Co., 2009.