

## **Tolga Tasdizen**

Assistant Professor of Electrical and Computer Engineering

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### **EDUCATION**

- Ph.D. in Engineering, Brown University, Providence, RI 2001
- M.S. in Engineering, Brown University, Providence, RI 1997
- B.S. in Electrical Engineering, Bogazici University, Istanbul, Turkey 1995

### **WORK EXPERIENCE**

- Assistant Professor, Electrical and Computer Engineering 2008 - present
- Assistant Professor, Scientific Computing and Imaging Institute  
University of Utah, Salt Lake City, UT
- Adjunct Assistant Professor, School of Computing 2008 - present  
University of Utah, Salt Lake City, UT
- Adjunct Assistant Professor, Department of Neurology 2006 - present
- Adjunct Faculty Member, Center for Alzheimer's Care, Imaging and Research  
University of Utah, Salt Lake City, UT
- Research Assistant Professor, School of Computing 2004 - 2008  
University of Utah, Salt Lake City, UT
- Postdoctoral Research Scientist, Scientific Computing and Imaging Institute 2001 - 2004  
University of Utah, Salt Lake City, UT

### **RESEARCH INTERESTS**

- Image processing and pattern recognition with a focus on applications in biomedical imaging; image parsing with classifiers using context and neighborhoods.
- Analysis of data supported on low-dimensional manifolds in high-dimensional spaces, particularly in image analysis, reconstruction and filtering applications.
- Variational methods and level-sets for surface reconstruction and processing.
- Neural circuit reconstruction (connectomics) from electron microscopy; automatic methods for fast registration of very large image mosaics and segmentation.
- Tracing of long range circuits from confocal microscopy; alignment of confocal sections using automated landmark based methods.

## RESEARCH GRANTS (PI or co-PI role)

- **SLASH: Scalable Large Analytic Segmentation Hybrid**  
co-PIs: Mak H Ellisman, Maryann E Martone and Tolga Tasdizen  
Funding agency: NIH NINDS  
Award \$1,864,741. 20011-15 (Tasdizen share \$646,110)
- **Fluorender: An imaging tool**  
co-PIs: Charles Hansen, Tolga Tasdizen, Chi-Bin Chien  
Funding agency: NIH NIGMS  
Scored 8%. Award expected (\$1,881,250).
- **The influence of visual context in natural image processing in the primary visual cerebral cortex**  
co-PIs: Tolga Tasdizen and Alessandra Angelucci  
Funding Agency: University of Utah Seed Grant  
Award: \$22,500, July 1, 2011 - June 30, 2012
- **Large-scale computational reconstruction of three-dimensional neural connectivity from serial-section microscopy**  
PI: Tolga Tasdizen  
Funding agency: NIH NIBIB  
Program: NSF/NIH Collaborative Research in Computational Neuroscience program  
Award \$1,148,297. 2005-10
- **A Computational Framework for Mapping Long Range Genetic Circuits**  
co-PIs: Julie Korenberg and Tolga Tasdizen  
Funding agency: NIH NINDS  
Award: \$996,734. 2009-11
- **High-Dimensional, Nonparametric Density Estimation for the Analysis of Images and Shapes**  
co-PIs: Ross Whitaker, Tolga Tasdizen, Jared Tanner and Davar Khoshnevisan  
Funding Agency: NSF  
Program: Mathematical Sciences: Innovations at the Interface with Computer Sciences  
Award: \$474,000. 2008-11
- **A Software Framework for Processing, Visualization, and Analysis of High-Resolution Microscopy Data**  
PI: Tolga Tasdizen  
Funding Agency: University of Utah, Technology commercialization program  
Award: \$70,000. 2009-10

## RESEARCH GRANTS (Senior personnel role)

- **Model-based Reconstruction for Dynamic MRI**  
PI: Edward Di Bella, Department of Radiology, University of Utah  
Funding Agency: NIH  
Award: \$1,650,000. 2007-11 (Tasdizen: advising 1 Ph.D. student)
- **Prevention of Hemodialysis Vascular Access Stenosis**  
PI: Alfred Cheung, Department of Internal Medicine, University of Utah  
Funding Agency: NIH  
Award: \$5,500,000. 2006-11, (Tasdizen: advised 1 M.S. student)

## AWARDS

- Dean's letter for top instructors in the College of Engineering, Fall 2011 (Digital Image Processing)
- Dean's letter for top instructors in the College of Engineering, Spring 2010 (Engineering Probability and Statistics)
- Best paper award MICCAI 2010 MedIA special Issue
- Dean's letter for top instructors in the College of Engineering, Fall 2009 (Estimation Theory)
- Best Student Paper Award Honorable Mention, 15th IEEE Computer Society International Conf. on Pattern Recognition, 2000.

## PATENTS

- Characterizing datasets using sampling, weighting, and approximation of an eigendecomposition, Inventors: A. R. C. Paiva and T. Tasdizen.
- Image Pattern Recognition. Status: Pending. Inventors: A. R.C. Paiva, T. Tasdizen. File date 12/12/2009. Assignee: The University of Utah.
- L. Grady, T. Tasdizen and R. Whitaker, "System and Method for Image Segmentation by Solving an Inhomogeneous Dirichlet Problem", United States Patent 7,542,604, June 2009.

## INVENTION DISCLOSURES

- A. R. C. Paiva and T. Tasdizen, "Weighted Novelty Selection for Fast Kernel and Graph Methods," University of Utah Invention Disclosure, U-4920.
- T. Tasdizen and R. Whitaker, "An Advanced Solver for the Diffusion Equation with Spatially Varying Coefficients," University of Utah Invention Disclosure, U-3750.
- T. Tasdizen and R. Whitaker, "Implicit Surface Representations for Fluids from Particle Simulations," University of Utah Invention Disclosure, U-4128.
- P. Koshevoy, T. Tasdizen, R. Whitaker, B. Jones and R. Marc, "IR-Tweak, IR-Mosaic", University of Utah Invention Disclosure, U-4275.
- T. Tasdizen and A. Paiva, "Robust Fingerprint Analysis Using Manifold Topology", University of Utah Invention Disclosure, U-4549.

## PROFESSIONAL ACTIVITIES

- IEEE Signal Processing Society, Bio imaging and Signal Processing (BISP) Technical Committee Associate Member, 2009-present
- Review Editor, *Frontiers in Computational Physiology and Medicine*, 2011-present.
- Program committee, *Microscopic Image Analysis with Applications in Biology 2011*.
- 20<sup>th</sup> International Conference on Pattern Recognition; *Pattern Recognition and Machine Learning Track* track area chair and session chair, 2010
- Program chair, Fourth International Workshop on *Microscopic Image Analysis with Applications in Biology*, NIH Campus, Bethesda, MD, 2009.

- Organizing committee, MICCAI 2008 Workshop: *Microscopic Image Analysis with Applications in Biology*.
- Program committee, MICCAI 2006 Workshop: *Microscopic Image Analysis with Applications in Biology*.
- Panelist and reviewer for joint National Science Foundation (NSF) and National Institutes of Health (NIH) *Collaborative Research in Computational Neuroscience* program, 2006, 2008, 2009 and 2010.
- Imaging and Computer in the Loop breakout session speaker, Opportunities in Biology at the Extreme Scale of Computing, Chicago, 2009.
- 6<sup>th</sup> IEEE International Symposium on Biomedical Imaging (ISBI): From Nano to Macro; *Electron Microscopy* session chair, 2009.
- Program committee, International Symposium CompIMAGE 2010, CompIMAGE 2012.
- Program committee, IMAGAPP 2010
- Reviewer for: IEEE Transactions on Image Processing, IEEE Transactions on Pattern Analysis and Machine Intelligence, Medical Image Analysis, IEEE Transactions on Medical Imaging, IEEE Transactions on Visualization and Computer Graphics, Medical Image Computing and Computer-Assisted Intervention (MICCAI), IEEE Visualization, Journal of Neuroscience Methods, IEEE Reviews in Biomedical Engineering, Journal of Mathematical Imaging and Vision, Pattern Analysis and Applications, ACM Solid Modeling, SIAM Journal of Scientific Computing, VisSym, Eurographics, Eurographics Workshop on Visual Computing for Biology and Medicine, Journal of Electronic Imaging, The Visual Computer, SIGGRAPH Asia, Elsevier Methods.

## MEMBERSHIPS

- Senior Member IEEE, IEEE Signal Processing Society and IEEE Computer Society

## TEACHING

- *Estimation Theory*, Graduate level, Electrical and Computer Engineering, University of Utah, Fall 2009
- *Engineering Probability and Statistics*, Undergraduate level, Electrical and Computer Engineering, University of Utah, Spring 2009, Spring 2010, Spring 2011
- *Digital Image Processing*, Graduate level, Electrical and Computer Engineering, University of Utah, Fall 2008, Fall 2010
- *Machine Learning*, Graduate and Undergraduate level, Computer Science, University of Utah, Spring 2006
- Organized the *Scientific Computing and Imaging Seminar Series*, University of Utah, Fall 2007 & Spring 2008

## Ph.D. STUDENTS GRADUATED

- Elizabeth Jurrus, May 2011, Dissertation title: Segmentation of Neurons from Electron Microscopy Images

## **M.S. STUDENTS GRADUATED**

- Neda Sadeghi, M.S. in Computational Engineering and Science (2008), *Automatic Classification of Alzheimer's Disease and Frontotemporal Dementia: A Decision Tree Approach with FDG-PET imaging.*
- Samuel Preston, M.S. Computer Science (2009), *Processing of MRI Data for Simulation and Monitoring of Drug Delivery.*
- Deepak Antony, M.S. in Computational Engineering and Science (2009), *non-thesis option.*
- Kannan Umadevi Venkataraju, M.S. Computer Science (2010), *Automatic Markup of Neural Cell Membranes Using Boosted Decision Stumps.*
- Bradley Grimm, M.S. in Computer Science (2011), *non-thesis option.*

## **CURRENT GRADUATE STUDENTS**

- Srikant Kamesh Iyer, Ph.D. candidate Electrical and Computer Engineering, coadvising with Dr. Edward DiBella
- Luke Hogrebe, Ph.D. candidate Electrical and Computer Engineering
- Mojtaba Seyedhosseini, Ph.D. candidate Electrical and Computer Engineering
- Nisha Ramesh, M.S. candidate Electrical and Computer Engineering
- Samuel Gerber, Ph.D. candidate School of Computing, coadvising with Dr. Ross Whitaker

## **PAST AND CURRENT UNDERGRADUATE STUDENT PROJECTS**

- Jason Thummel, School of Computing, *Vesicle Detection for Electron Microscopy Images with ImageJ*
- Michael Yang, Computer Engineering, *User Interface for Neural Circuit Reconstruction from Electron Microscopy*

## **PUBLICATIONS**

- **Journal**
  1. L. Hogrebe, A. R.C. Paiva, E. Jurrus, C. Christensen, M. Bridge, J.R. Korenberg, P. R. Hof, B. Roysam, T. Tasdizen, Serial Section Registration of Axonal Confocal Microscopy Datasets for Long Range Neural Circuit Reconstruction, in preparation.
  2. N. Ramesh, B. J. Dangott, M. Salama and T. Tasdizen, Segmentation and Two-Step Classification of White Blood Cells in Peripheral Blood Smear, submitted.
  3. E. Jurrus, S. Watanabe, A. R. C. Paiva, M. Ellisman, E. M. Jorgensen and T. Tasdizen, Neuron Reconstruction from Electron Microscopy Images, submitted.
  4. S. K. Iyer, T. Tasdizen and E. V. R. DiBella, Edge Enhanced Spatio-Temporal Constrained Reconstruction of Undersampled Dynamic Contrast Enhanced Radial MRI, submitted.
  5. M. L. Berlanga, S. Phan, E. A. Bushong, S. Lamont, S. Wu, O. Kwon, B. S. Phung, M. Terada, T. Tasdizen, E. Martone and M. H. Ellisman, "Three-dimensional reconstruction of serial mouse brain sections using high-resolution large-scale mosaics," *Frontiers in Neuroscience Methods*, Vol 5, March 2011.

6. J. R. Anderson, B. W. Jones, C. B. Watt, M. V. Shaw, J.-H. Yang, D. DeMill, J. S. Lauritzen, Y. Lin, K. D. Rapp, D. Mastonarde, P. Koshevoy, B. Grimm, T. Tasdizen, R. Whitaker and R. E. Marc, Exploring the Retinal Connectome, *Molecular Vision*, 17:355-379, February 2011.
7. J. R. Anderson, B. C. Grimm, S. Mohammed, B.W. Jones, T. Tasdizen, J Spaltenstein, P. Koshevoy, R. Whitaker and R.E. Marc, "The Viking Viewer: Scalable Multiuser Annotation and Summarization of Large Volume Datasets," *Journal of Microscopy*, 241(1), pp. 13-28, January 2011.
8. E. Jurrus and A. R. C. Paiva and S. Watanabe, J. R. Anderson, B. W. Jones, R. T. Whitaker, E. M. Jorgensen, R. E. Marc and T. Tasdizen, "Detection of Neuron Membranes in Electron Microscopy Images using Auto-context," *Medical Image Analysis*, 14:6, pp. 770-783, December 2010
9. G. Adluru, T. Tasdizen, M. Schabel and E. V. R. DiBella, "Reconstruction of 3D Dynamic Contrast Enhanced MRI using Non-Local Means," *Journal of Magnetic Resonance Imaging*, 32(5), pp. 1217-27, November 2010
10. T. Tasdizen, P. Koshevoy, B. C. Grimm, J. R. Anderson, B. W. Jones, C. B. Watt, R. T. Whitaker and R. E. Marc, "Automatic mosaicking and volume assembly for high-throughput serial-section transmission electron microscopy," *Journal of Neuroscience Methods*, 193(1): 132-44, October 2010
11. S. Gerber, T. Tasdizen, P. T. Fletcher, S. Joshi, R. Whitaker and the Alzheimers Disease Neuroimaging Initiative (ADNI), Manifold modeling for brain population analysis, *Medical Image Analysis*, Volume 14, Issue 5, Special Issue on the 12th International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI) 2009, October 2010, Pages 643-653. **Best paper of the special issue award.**
12. C. Schlimper, O. Nemitz, U. Dorenbeck, J. Scorzin, R. Whitaker, T. Tasdizen, M. Rumpf and K. Schaller, "Restoring three-dimensional magnetic resonance angiography images with mean curvature motion," *Neurological Research*, vol. 32, no. 1, pp. 87-93, February 2010.
13. T. Tasdizen, "Principal Neighborhood Dictionaries for Non-local Means Image Denoising," *IEEE Transactions on Image Processing*, vol. 18, no. 12., pp. 2649-60, December 2009. **Top third accessed paper in IEEE Xplore in November 2009.**
14. J. R. Anderson, B. W. Jones, J-H Yang, C. B. Watt, P. Koshevoy, J. Spaltenstein, U. V. Kannan, R. Whitaker, D. Mastronarde, T. Tasdizen and R. E Marc, "A Computational Framework for Ultrastructural Mapping of Neural Circuitry," *PLoS Biology*, vol. 7, no. 3, pp. e74, March 2009.
15. J. S. Preston, T. Tasdizen, C. M. Terry, A. K. Cheung and R. M. Kirby, "Using the Stochastic Collocation Method for the Uncertainty Quantification of Drug Concentration due to Depot Shape Variability," *IEEE Trans. Biomedical Engineering*, Vol. 56, no. 3, pp. 609-619, March 2009.
16. E. Jurrus, T. Tasdizen, P. Koshevoy, P. T. Fletcher, M. Hardy, C. Chien, W. Denk, and R. Whitaker, "Axon Tracking in Serial Block-Face Scanning Electron Microscopy," *Medical Image Analysis*, Volume 13, Issue 1, pp. 180-188, February 2009.
17. N. L. Foster, A. Y. Wang, T. Tasdizen, P. T. Fletcher, J. M. Hoffman and R. A. Koeppe, "Realizing the potential of positron emission tomography with F-fluorodeoxyglucose to improve the treatment of Alzheimer's disease," *The Journal of the Alzheimer's Association*, Vol 4:1, Suppl. 1, pp. 29-36, January 2008.

18. G. Adluru, S. P. Awate, T. Tasdizen, R. T. Whitaker and E. V. R. DiBella, "Temporally Constrained Reconstruction of Dynamic Cardiac Perfusion MRI," *Magnetic Resonance in Medicine*, 57, pp. 1027-1036, June 2007.
19. O. Nemitz, T. Tasdizen, M. Rumpf and R. T. Whitaker, "Anisotropic Curvature Motion for Structure Enhancing Smoothing of 3D MR Angiography Data," *Journal of Mathematical Imaging and Vision*, 7:3, pp 217-229, April 2007.
20. S. P. Awate, T. Tasdizen, N. L. Foster and R. T. Whitaker, "Adaptive Markov modeling for mutual-information-based, unsupervised MRI brain-tissue classification," *Medical Image Analysis*, 10:5, pp. 726-739, October 2006. *8th most cited paper in Medical Image Analysis 2006-9*.
21. T. Tasdizen and R. T. Whitaker, "Higher-order nonlinear priors for surface reconstruction", *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 26:7, pp. 878–891, July 2004.
22. T. Tasdizen, R. T. Whitaker, P. Burchard and S. Osher, "Geometric Surface Processing via Normal Maps", *ACM Transactions on Graphics*, 22:4, pp. 1012-1033, October 2003.
23. T. Tasdizen, J.-P. Tarel and D. B. Cooper, "Improving the Stability of Algebraic Curves for Applications", *IEEE Transactions on Image Processing*, 9:3, pp. 405–416, March 2000.
24. T. Tasdizen, L. Akarun and C. Ersoy, "Color Quantization with Genetic Algorithms", *Signal Processing: Image Communication*, Elsevier, Vol. 12, pp. 49–57, March 1998.

- **Conference**

1. S. M. Seyedhosseini, R. Kumar, E. Jurrus, R. Guily, M. Ellisman, H. Pfister and T. Tasdizen, "Detection of Neuron Membranes in Electron Microscopy Images using Multi-scale Context and Radon-like Features," accepted to the Int. Conf. on Medical Image Computing and Computer Assisted Intervention (MICCAI) 2011.
2. S. M. Seyedhosseini, A. R. C. Paiva and T. Tasdizen, "Fast AdaBoost Training using Weighted Novelty Selection," *International Joint Conference on Neural Networks* 2011.
3. Z. Leng, J. Korenberg, B. Roysam and T. Tasdizen, "A Rapid 2-D Centerline Extraction Method Based On Tensor Voting," *IEEE International Symposium on Biomedical Imaging (ISBI): From Nano to Macro*, 2011.
4. L. Hoglebe, A. Paiva, E. Jurrus, C. Christensen, M. Bridge, J. Korenberg and T. Tasdizen, "Trace Driven Registration Of Neuron Confocal Microscopy Stacks," *IEEE International Symposium on Biomedical Imaging (ISBI): From Nano to Macro*, 2011.
5. A. R. C. Paiva and T. Tasdizen, "Detection of Salient Image Points using Manifold Structure," *Int. Conf. on Pattern Recognition* 2010.
6. A. R. C. Paiva, E. Jurrus and T. Tasdizen, "Using Sequential Context for Image Analysis," *Int. Conf. on Pattern Recognition* 2010.
7. G Adluru, T. Tasdizen, R. T. Whitaker and E. DiBella, "Improving Undersampled MRI Reconstruction Using Non-Local Means," *Int. Conf. on Pattern Recognition* 2010.
8. S. M. Seyedhosseini, A. R. C. Paiva and T. Tasdizen, "Image Parsing with a Three-State Series Neural Network Classifier," *Int. Conf. on Pattern Recognition* 2010.
9. S. K. Iyer, E. DiBella, T. Tasdizen, "Edge enhanced spatio-temporal constrained reconstruction of undersampled dynamic contrast enhanced radial MRI," *IEEE International Symposium on Biomedical Imaging (ISBI): From Nano to Macro*, 2010.

10. A. Paiva and T. Tasdizen, "Fast semi-supervised image segmentation by novelty selection," ICASSP 2010.
11. E. Jurrus, A. R. C. Paiva, S. Watanabe, R. Whitaker, E. M. Jorgensen and T. Tasdizen, "Serial Neural Network Classifier for Membrane Detection using a Filter Bank," Int. Workshop on Microscopic Image Analysis with Applications in Biology, 2009.
12. S. Gerber, T. Tasdizen and R. T. Whitaker, "Dimensionality Reduction and Principal Surfaces via Kernel Map Manifolds," Int. Conf. on Computer Vision (ICCV), 2009.
13. S. Gerber, T. Tasdizen, S. Joshi and R. T. Whitaker, "On the Manifold Structure of the Space of Brain Images" Int. Conf. on Medical Image Computing and Computer Assisted Intervention (MICCAI), 2009.
14. K. U. Venkataraju, A. Paiva, E. Jurrus. T. Tasdizen, "Automatic Markup of Neural Cell Membranes using Boosted Decision Stumps," IEEE International Symposium on Biomedical Imaging (ISBI): From Nano to Macro, 2009
15. J. Anderson, B. Jones, J. H. Yang, M. Shaw, C. Watt, P. Koshevoy, J. Spaltenstein, E. Jurrus, K. U. Venkataraju, R. Whitaker, D. Mastronarde, T. Tasdizen, R. Marc, "Ultrastructural mapping of neural circuitry: A computational framework," IEEE International Symposium on Biomedical Imaging (ISBI): From Nano to Macro, 2009
16. T. Tasdizen, E. Jurrus and R. T. Whitaker, "Non-uniform Illumination Correction in Transmission Electron Microscopy," MICCAI Workshop on Microscopic Image Analysis with Applications in Biology, 2008.
17. T. Tasdizen, "Principal components for non-local means image denoising," International Conference on Image Processing (ICIP), 2008.
18. N. Sadeghi, N. L. Foster, A. Y. Wang, S. Minoshima, A. P. Lieberman and T. Tasdizen, "Automatic Classification of Alzheimer's Disease vs. Frontotemporal Dementia: A Spatial Decision Tree Approach with FDG-PET," IEEE International Symposium on Biomedical Imaging (ISBI): From Nano to Macro, pp. 408-411, 2008.
19. E. Jurrus, R. T. Whitaker, B. W. Jones, R. E. Marc and T. Tasdizen, "An Optimal-Path Approach for Neural Circuit Reconstruction," IEEE International Symposium on Biomedical Imaging (ISBI): From Nano to Macro, pp. 1609-1612, 2008.
20. S. Gerber, T. Tasdizen and R. T. Whitaker, "Robust Non-linear Dimensionality Reduction using Successive 1-Dimensional Laplacian Eigenmaps," Int. Conf. on Machine Learning (ICML), pp. 281-288, 2007.
21. T. Tasdizen, P. Koshevoy, B. W. Jones, R. T. Whitaker and R. E. Marc, "Assembly of Large Three-Dimensional Volumes from Serial-Section Transmission Electron Microscopy," MICCAI Workshop on Microscopic Image Analysis with Applications in Biology, pp. 10-17, 2006.
22. E. Jurrus, T. Tasdizen, P. Koshevoy, M. Hardy, C.-B. Chien, R. T. Whitaker and W. Denk, "Axon Tracking in Serial Block-Free Scanning Electron Microscopy," MICCAI Workshop on Microscopic Image Analysis with Applications in Biology, pp. 114-119, 2006.
23. S. P. Awate, E. V. R. DiBella, T. Tasdizen and R. T. Whitaker, "Model-Based Image Reconstruction for Dynamic Cardiac Perfusion MRI from Sparse Data," IEEE Engineering in Medicine and Biology Conference, pp. 936-941, 2006.
24. S. P. Awate, T. Tasdizen an R. T. Whitaker, "Unsupervised Texture Segmentation with Nonparametric Neighborhood Statistics," European Conference on Computer Vision (ECCV), 2006.

25. J. M. Kniss, R. Van Uitert, A. Stephens, G. Li, T. Tasdizen and C. Hansen, "Statistically Quantitative Volume Visualization," IEEE Visualization, 2005.
26. T. Tasdizen, S. Awate, R. T. Whitaker and N. L. Foster, "MRI Tissue Classification with Neighborhood Statistics: A Nonparametric, Entropy-Minimizing Approach," 8th International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI), Lecture Notes in Computer Science LNCS 3749, Vol. 2 pp. 517–525, 2005.
27. T. Tasdizen, R. T. Whitaker, R. Marc and B. W. Jones, "Enhancement of Cell Boundaries in Transmission Microscopy Images," Int. Conf. on Image Processing (ICIP), Vol. 2, pp. 129–132, 2005.
28. L. Grady and T. Tasdizen, "A Geometric Multigrid Approach to Solving the 2D Inhomogeneous Laplace Equation with Internal Dirichlet Boundary Conditions," International Conference on Image Processing (ICIP), Vol. 2, pp. 642–645, 2005.
29. G. Kindlmann, A. L. Alexander, M. Lazar, J. Lee, T. Tasdizen and R. T. Whitaker, "An Algorithm for Moment-Based Global Registration of Echo Planar Diffusion-Weighted Images," 12th Annual ISMRM, pp. 2200, 2004.
30. T. Tasdizen and R. T. Whitaker, "Anisotropic diffusion of surface normals for feature preserving surface reconstruction", 4th Int. Conf. on 3-D Digital Imaging and Modeling, pp. 353–360, 2003.
31. T. Tasdizen and R. T. Whitaker, "Cramer-Rao Bounds for Nonparametric Surface Reconstruction from Range Data", 4th Int. Conf. on 3-D Digital Imaging and Modeling, pp. 70–77, 2003.
32. T. Tasdizen and R. T. Whitaker, "Feature preserving variational smoothing of terrain data", 2nd Int. IEEE Workshop on Variational, Geometric and Level Set Methods in Computer Vision, 2003.
33. G. Kindlmann, R. T. Whitaker, T. Tasdizen, and T. Moller, "Curvature-Based Transfer Functions for Direct Volume Rendering: Methods and Applications", IEEE Visualization, pp. 513–520, 2003.
34. S. Premoze, T. Tasdizen, J. Bigler, A. Lefohn and R. T. Whitaker, "Particle-Based Simulation of Fluids", Eurographics, pp. 401–410, 2003.
35. M. Barzohar, L. Preminger, T. Tasdizen and D. B. Cooper, "Robust Method for Completely Automatic Aerial Detection of Occluded Roads with New Initialization," Proceedings of SPIE – Volume 4820, Infrared Technology and Applications XXVIII, Bjorn Andresen, Gabor F. Fulop, Marija Strojnik, Editors, pp. 688-698, 2003.
36. T. Tasdizen, R. T. Whitaker, P. Burchard and S. Osher, "Geometric Surface Smoothing via Anisotropic Diffusion of Normals", IEEE Visualization, pp. 125–132, 2002.
37. T. Tasdizen and D. B. Cooper, "Boundary Estimation from Intensity/Color Images with Algebraic Curve Models", 15th IEEE Computer Society International Conference on Pattern Recognition (ICPR), Vol 1, pp. 225–228, 2000. **Best Student Paper Award Honorable Mention.**
38. T. Tasdizen, J.-P. Tarel and D. B. Cooper, "Algebraic Curves that Work Better", IEEE Computer Society Conf. on Computer Vision and Pattern Recognition (CVPR), Vol 2, pp. 35–41, 1999.
39. Z. Lei, T. Tasdizen and D. B. Cooper, "PIMs and Invariant Parts for Shape Recognition", in Proceedings of 6th IEEE Computer Society Int. Conf. on Computer Vision (ICCV), 1997.

40. L. Akarun, T. Tasdizen and C. Ersoy, "Genetik Algoritmalarla Renk Nicemlemesi", SIU'97 Bildiriler kitabı, 1997.

● **Abstracts and Other Publications**

1. Shushruth S, Tasdizen T, Ichida JM, Angelucci A (2011). Surround signals in V1 evoked by natural images carry image specific information. Grand Challenges in Neural Computation, Santa Fe, NM
2. J. Anderson, B. W. Jones, D. Mastronarde, P. Koshevoy, C.B. Watt, J. Yang, T. Tasdizen, R. Whittaker, J. Spaltenstein, R.E. Marc, "The Retinal Connectome: Networks in the Amacrine Cell Layer", The Association for Research in Vision and Ophthalmology (ARVO), 2009.
3. E. Jurrus, T. Tasdizen, S. Watanabe, M. W. Davis, E. M. Jorgensen and R. T. Whitaker, "Semi-Automated Reconstruction of the Neuromuscular Junctions in the *C. elegans*," MICCAI Workshop on Microscopic Image Analysis with Applications in Biology, 2008.
4. N. L. Foster, A. Y. Wang, T. Tasdizen, K. Chen, W. Jagust, R. A. Koeppe, E. Reiman, M. W. Weiner and S. Minoshima, "Cerebral Hypometabolism Suggesting Frontotemporal Dementia in an Alzheimer's Disease Clinical Trial, American Academy of Neurology, 2008.
5. T. Fletcher, A. Wang, T. Tasdizen, K. Chen, W. Jagust, R. Koeppe, E. Reiman, M. Weiner, S. Minoshima, N. Foster, "Variability of Normal Cerebral Glucose Metabolism from the Alzheimer's Disease Neuroimaging Initiative: Implications for Clinical Trials," Annals of Neurology, Vol 62:11, 2007.
6. B. W. Jones, R. E. Marc, C. B. Watt, K. Kinardi, D. DeMill, J.H. Yang, T. Tasdizen, P. Koshevoy, E. Jurrus and R. T. Whitaker, "Structure and Function of Microneuromas in Retinal Remodeling," The Association for Research in Vision and Ophthalmology (ARVO), 2007.
7. W.-K. Jeong, T. Tasdizen and R. T. Whitaker, "Feature Preserving Smoothing of Height Field Data using Multigrid Solver on GPU," in proceedings ACM Workshop on General Purpose Computing on Graphics Processors, 2004.
8. J. Zhou, D. P. Lopresti and T. Tasdizen, "Finding Text in Color Images", SPIE Document Recognition V, 1998.
9. Z. Lei, T. Tasdizen and D. B. Cooper, "Object Signature Curve and Invariant Shape Patches for Geometric Indexing into Pictorial Databases", Multimedia Storage and Archiving Systems II, SPIE International Symposium and Education Program on Voice, Video, and Data Communications, 1997.