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AREAS OF INTEREST

Medical Image Analysis, Spatio-temporal Modeling, Image Processing, Shape Analysis,
Visual Tracking, Control- and Estimation-Theory, Biomedical Applications.

EDUCATION

- 07/01–12/04 **Georgia Institute of Technology**, Atlanta, GA, USA
Ph.D. in Electrical and Computer Engineering,
Research Area: Image Processing, Visual Tracking, Visual Control
Thesis title: *Dynamic level sets for visual tracking*
- 07/01–12/02 **Georgia Institute of Technology**, Atlanta, GA, USA
M.S. in Applied Mathematics
- 10/95–09/00 **Universität Stuttgart**, Stuttgart, Germany
Diplom-Ingenieur in Engineering Cybernetics (with highest honors)
Research Area: Control Theory, System Identification
Thesis title: *An approach towards nonlinear continuous-time system identification*
- 09/98–08/99 **Georgia Institute of Technology**, Atlanta, GA, USA
M.S. in Engineering Science and Mechanics
Research Area: Signal Processing for Nondestructive Testing of Materials
Thesis title: *Application of time-frequency representations to characterize ultrasonic signals*

RESEARCH EXPERIENCE

- since 01/08 **Assistant Professor, Department of Computer Science
and Biomedical Research Imaging Center (BRIC),
University of North Carolina**, Chapel Hill, NC, USA
- 07/07–12/07 **Instructor, Harvard Medical School**, Boston, MA, USA
- 09/05–06/07 **Officer, Harvard Medical School**, Boston, MA, USA
- 09/05–12/07 **Research Fellow, Brigham and Women's Hospital**, Boston, MA, USA
Joint Appointment in the Departments of Psychiatry and Radiology,
Research in medical image processing and analysis.
- 01/05–09/05 **Research Engineer, School of Electrical and Computer Engineering,
Georgia Institute of Technology**, Atlanta, GA, USA
- 08/01–12/04 **Research Assistant, School of Electrical and Computer Engineering,
Georgia Institute of Technology**, Atlanta, GA, USA
Research in image processing and analysis.

RESEARCH EXPERIENCE

- 04/00–05/01 **Research Assistant, Institute for Systems Theory in Engineering, Universität Stuttgart**, Stuttgart, Germany
Research in nonlinear continuous-time system identification.
- 11/99–04/00 **Daimler Chrysler**, Esslingen, Germany
Research in nonlinear vehicle skidding control.
- 02/99–08/99 **Research Assistant, School of Civil and Environmental Engineering, Georgia Institute of Technology**, Atlanta, GA, USA
Research in signal processing for nondestructive testing of materials.
- 08/97–08/98 **Research Assistant, Institute for System Dynamics and Control Theory, Universität Stuttgart**, Stuttgart, Germany
Development of an interpreter for a chemical engineering simulation environment.

OTHER EXPERIENCE

- 07/04 **Institute for Pure and Applied Mathematics (IPAM)**, UCLA, CA, USA
Participated in the Graduate Summer School: Mathematics in Brain Imaging.
- 07/02–08/02 **Mathematical Sciences Research Institute (MSRI)**, Berkeley, CA, USA
Participated in the International School on Biomathematics, Bioengineering and Clinical Aspects of Blood Flow.

HONORS

- 2012 NSF Career Award
- 2011 Teaching award, The Computer Science Student Association, UNC Chapel Hill
- 2010 Best paper award at Miccai workshop for Longitudinal and Time-Series Image Data
- 2004 Marion and Henry Bourne Fellowship
- 2001–2003 Steve Chaddick Fellowship
- 2001–2004 e-fellows Fellowship
- 2001 Prof. P. Sagirow Award
- 2001 Procter and Gamble Award
- 1998–2000 German National Merit Foundation Fellowship (Studienstiftung des deutschen Volkes)
- 1998–1999 German academic exchange service Fellowship (DAAD)
- 1997 Outstanding pre-diploma in Engineering Cybernetics Award

See <http://scholar.google.com/citations?user=KqtBi6MAAAAJ&hl=en> for citation information.

PEER-REVIEWED JOURNAL PUBLICATIONS

- [1] Y. Shi, S. J. Short, R. C. Knickmeyer, J. Wang, C. L. Coe, —, J. Gilomre, H. Zhu, and M. Styner, “Diffusion tensor imaging based characterization of brain neurodevelopment in primates,” *Cerebral Cortex*, 2012, accepted for publication.
- [2] J. Miedema, J. S. Marron, —, D. Borland, J. Woosley, J. Cposky, S. Wei, and N. E. Thomas, “Image and statistical analysis of melanocytic histology,” *Histopathology*, 2011, accepted for publication.
- [3] J. Caplan, —, R. M. Taylor III, and K. J. Czymmek, “The power of correlative microscopy: Multi-modal, multi-scale, multi-dimensional,” *Current Opinions in Structural Biology*, vol. 21, no. 5, pp. 686–693, 2011, <http://wwwx.cs.unc.edu/~mn/?q=content/power-correlative-microscopy-multi-modal-multi-scale-multi-dimensional>.
- [4] I. Kabul, S. M. Pizer, J. Rosenman, and —, “An optimal control approach for texture metamorphosis,” in *Computer Graphics Forum*, 2011, vol. 30, pp. 2341–2353, <http://wwwx.cs.unc.edu/~mn/?q=content/optimal-control-approach-texture-metamorphosis>.
- [5] M. Walterfang, J. C. L. Looi, M. Styner, R. H. Walker, A. Danek, —, A. Evans, K. Kotschet, G. R. Rodrigues, A. Hughes, and D. Velakoulis, “Shape alterations in the striatum in chorea-acanthocytosis,” *Psychiatry Research: NeuroImaging*, vol. 192, pp. 29–36, 2011, <http://wwwx.cs.unc.edu/~mn/?q=content/shape-alterations-striatum-chorea-acanthocytosis>.
- [6] J. C. L. Looi, M. Walterfang, M. Styner, —, L. Svensson, O. Lindberg, P. Ostberg, L. Botes, E. Orndahl, P. Chua, D. Velakoulis, and L.-O. Wahlund, “Shape analysis of the neostriatum in subtypes of frontotemporal lobar degeneration: neuroanatomically significant regional morphologic change,” *Psychiatry Research - Neuroimaging*, vol. 191, no. 2, pp. 98–111, 2011, <http://wwwx.cs.unc.edu/~mn/?q=content/shape-analysis-neostriatum-subtypes-frontotemporal-lobar-degeneration-neuroanatomically-sign>.
- [7] F. Kerber, H. Sprenger, —, K. Luangvilai, and L. Jacobs, “Attenuation analysis of Lamb waves using the chirplet transform,” *EURASIP: Journal on Advances in Signal Processing*, 2010, <http://wwwx.cs.unc.edu/~mn/?q=content/attenuation-analysis-lamb-waves-using-chirplet-transform>.
- [8] E. Kaplan, J. Y. Min, Q. Ke, Y. Chen, —, J. S. Rana, S. Malek, F. W. Verheugt, and J. P. Morgan, “Calcium and cyclic nucleotides affect TNF-alpha-induced stem cell migration,” *Biochemical and Biophysical Research Communications*, vol. 382, no. 2, pp. 241–246, 2009, <http://wwwx.cs.unc.edu/~mn/?q=content/calcium-and-cyclic-nucleotides-affect-tnf-alpha-induced-stem-cell-migration>.
- [9] E. Gerardin, G. Chetelat, M. Chupin, R. Cuingnet, B. Desgranges, H.-S. Kim, —, B. Dubois, L. Garnero, S. Lehericy, F. Eustache, and O. Colliot, “Multidimensional classification of hippocampal shape features discriminates Alzheimer’s disease and mild cognitive impairment from normal aging,” *Neuroimage*, vol. 47, no. 4, pp. 1476–1486, 2009, <http://wwwx.cs.unc.edu/~mn/?q=content/multidimensional-classification-hippocampal-shape-features-discriminates-alzheimers-disease->.
- [10] A. N. Voineskos, L. J. O’Donnell, N. J. Lobaugh, D. Markant, —, B. H. Mulsant, B. G. Pollock, J. L. Kennedy, C.-F. Westin, and M. E. Shenton, “Quantitative examination of a novel clustering method using magnetic resonance diffusion tensor tractography,” *Neuroimage*, vol. 45, no. 2, pp. 370–376, 2009, <http://wwwx.cs.unc.edu/~mn/?q=content/quantitative-examination-novel-clustering-method-using-magnetic-resonance-diffusion-tensor-t>.
- [11] M. Reuter, F.-E. Wolter, M. Shenton, and —, “Laplace-Beltrami eigenvalues and topological features of eigenfunctions for statistical shape analysis,” *Computer Aided Design*, vol. 41, no. 10, pp. 739–755, 2009, <http://wwwx.cs.unc.edu/~mn/?q=content/laplace-beltrami-eigenvalues-and-topological-features-eigenfunctions-statistical-shape-analy>.

- [12] J. J. Levitt, M. Styner, —, S. Bouix, M.-S. Koo, M. M. Voglmaier, C. C. Dickey, M. A. Niznikiewicz, R. Kikinis, R. W. McCarley, and M. E. Shenton, “Shape abnormalities of caudate nucleus in schizotypal personality disorder,” *Schizophrenia Research*, vol. 110, no. 1–3, pp. 127–139, 2009, <http://wwwx.cs.unc.edu/~mn/?q=content/shape-abnormalities-caudate-nucleus-schizotypal-personality-disorder>.
- [13] —, C. Zach, J. Melonakos, and A. Tannenbaum, “Near-tubular fiber bundle segmentation for diffusion weighted imaging: Segmentation through frame reorientation,” *Neuroimage*, vol. 45, no. 1, pp. S123–S132, 2009, <http://wwwx.cs.unc.edu/~mn/?q=content/near-tubular-fiber-bundle-segmentation-diffusion-weighted-imaging-segmentation-through-frame>.
- [14] S. Aja-Fernandez, —, and C.-F. Westin, “Restoration of DWI data using a Rician LMMSE estimator,” *IEEE Transactions on Medical Imaging*, vol. 27, pp. 1389–1403, 2008, <http://wwwx.cs.unc.edu/~mn/?q=content/restoration-dwi-data-using-rician-lmmse-estimator>.
- [15] —, P. A. Vela, and A. Tannenbaum, “Geometric observers for dynamically evolving curves,” *IEEE Transactions on Pattern Analysis and Machine Intelligence*, vol. 30, pp. 1093–1108, 2008, <http://wwwx.cs.unc.edu/~mn/?q=content/geometric-observers-dynamically-evolving-curves>.
- [16] P. A. Vela, —, G. D. Pryor, A. R. Tannenbaum, R. Butts, and D. Washburn, “Knowledge-based segmentation for tracking through deep turbulence,” accepted for publication in the *IEEE Transactions on Control Systems Technology*, vol. 16, pp. 469–474, 2008, <http://wwwx.cs.unc.edu/~mn/?q=content/knowledge-based-segmentation-tracking-through-deep-turbulence>.
- [17] H. Kuttig, —, S. Hurlbaeus, and L. J. Jacobs, “Model-based analysis of dispersion curves,” *Journal of the Acoustical Society of America*, vol. 119, pp. 2122–2130, 2006, <http://wwwx.cs.unc.edu/~mn/?q=content/model-based-analysis-dispersion-curves-using-chirplets>.
- [18] O. Kotte, —, and L. J. Jacobs, “Lamb wave characterization by differential reassignment and nonlinear anisotropic diffusion,” *NDT & E International*, vol. 39, pp. 96–105, 2006, <http://wwwx.cs.unc.edu/~mn/?q=content/lamb-wave-characterization-differential-reassignment-and-nonlinear-anisotropic-diffusion>.
- [19] —, A. Tannenbaum, and S. Angenent, “Dynamic active contours for visual tracking,” *IEEE Transactions on Automatic Control*, vol. 51, pp. 562–579, 2006, <http://wwwx.cs.unc.edu/~mn/?q=content/dynamic-active-contours-visual-tracking>.
- [20] —, W. D. Kalies, K. Mischaikow, and A. Tannenbaum, “Detecting simple points in higher dimensions using cubical homology,” *IEEE Transactions on Image Processing*, vol. 15, pp. 2462–2469, 2006, <http://wwwx.cs.unc.edu/~mn/?q=content/detection-simple-points-higher-dimensions-using-cubical-homology>.
- [21] —, P. A. Vela, and A. Tannenbaum, “On the evolution of vector distance functions of closed curves,” *International Journal of Computer Vision*, vol. 65, pp. 5–27, 2005, <http://wwwx.cs.unc.edu/~mn/?q=content/evolution-vector-distance-functions-closed-curves>.
- [22] —, S. Betelu, G. Sapiro, A. Tannenbaum, and P. J. Giblin, “Area-based medial axis of planar curves,” *International Journal of Computer Vision*, vol. 60, no. 3, pp. 203–224, 2004, <http://wwwx.cs.unc.edu/~mn/?q=content/area-based-medial-axis-planar-curves>.
- [23] R. Benz, —, S. Hurlbaeus, and L. J. Jacobs, “Localization of notches with Lamb waves,” *Journal of the Acoustical Society of America*, vol. 114, no. 2, pp. 677–685, 2003, <http://wwwx.cs.unc.edu/~mn/?q=content/localization-notches-lamb-waves>.
- [24] C. Valle, —, J. Qu, and L. J. Jacobs, “Crack characterization using guided circumferential waves,” *Journal of the Acoustical Society of America*, vol. 110, no. 3, pp. 1282–1290, 2001, <http://wwwx.cs.unc.edu/~mn/?q=content/crack-characterization-using-guided-circumferential-waves>.
- [25] S. Hurlbaeus, —, L. J. Jacobs, and C. Valle, “Automated methodology to locate notches with Lamb waves,” *Acoustic Research Letters Online*, vol. 2, no. 4, pp. 97–102, 2001, <http://wwwx.cs.unc.edu/~mn/?q=content/automated-methodology-locate-notches-lamb-waves>.

- [26] —, L. J. Jacobs, J. Qu, and J. Jarzynski, “Time-frequency representations of Lamb waves,” *Journal of the Acoustical Society of America*, vol. 109, no. 5, pp. 1841–1847, 2001, <http://wwwx.cs.unc.edu/~mn/?q=content/time-frequency-representations-lamb-waves>.
- [27] —, L. J. Jacobs, J. Qu, and J. Jarzynski, “Time-frequency representation of Lamb waves using the reassigned spectrogram,” *Acoustic Research Letters Online*, vol. 107, pp. L19–L24, 2000, <http://wwwx.cs.unc.edu/~mn/?q=content/time-frequency-representation-lamb-waves-using-reassigned-spectrogram>.

PEER-REVIEWED CONFERENCE PUBLICATIONS

- [1] T. Cao, K. Czymmek, and —, “Registration for correlative microscopy using image analogies,” in *Workshop on Biomedical Image Registration (WBIR)*, 2012.
- [2] I. Csapo, Y. Shi, M. Sanchez, M. Styner, and —, “Temporally-dependent image similarity measure for longitudinal analysis,” in *Workshop on Biomedical Image Registration (WBIR)*, 2012.
- [3] Y. Hong, M. Sanchez, M. Styner, and —, “Simple geodesic regression for image time-series,” in *Workshop on Biomedical Image Registration (WBIR)*, 2012.
- [4] J. van den Berg, D. Wilkie, S. J. Guy, —, and D. Manocha, “LQG-obstacles: Feedback control with collision avoidance for mobile robots with motion and sensing uncertainty,” in *Proceedings of the International Conference on Robotics and Automation (ICRA)*, 2012, accepted.
- [5] L. Shan, C. Charles, and —, “Automatic multi-atlas-based cartilage segmentation from knee MR images,” in *Proceedings of the International Symposium on Biomedical Imaging (ISBI)*, 2012.
- [6] L. Shan, C. Charles, and —, “Automatic atlas-based three-label cartilage segmentation from MR knee images,” in *Proceedings of the Workshop on Mathematical Methods in Biomedical Image Analysis (MMBIA)*, 2011, <http://wwwx.cs.unc.edu/~mn/?q=content/automatic-atlas-based-three-label-cartilage-segmentation-mr-knee-images>.
- [7] D. Pace, —, and S. Aylward, “Sliding geometries in deformable image registration,” in *MICCAI, Workshop on Computational and Clinical Applications in Abdominal Imaging*, 2011, <http://wwwx.cs.unc.edu/~mn/?q=content/sliding-geometries-deformable-image-registration>.
- [8] —, G. Hart, D. Pace, and S. Aylward, “Geometric metamorphosis,” in *MICCAI*, 2011, <http://wwwx.cs.unc.edu/~mn/?q=content/geometric-metamorphosis>.
- [9] —, Y. Huang, and F.-X. Vialard, “Geodesic regression,” in *MICCAI*, 2011, <http://wwwx.cs.unc.edu/~mn/?q=content/geodesic-regression>.
- [10] X. Liu, B. C. Davis, —, S. M. Pizer, and G. S. Mageras, “Prediction-driven respiratory motion atlas formation for 4d image-guided radiation therapy in lung,” in *MICCAI, International Workshop on Pulmonary Image Analysis*, 2010, <http://wwwx.cs.unc.edu/~mn/?q=content/prediction-driven-respiratory-motion-atlas-formation-4d-image-guided-radiation-therapy-lung>.
- [11] —, Y. Shi, S. Benzaid, M. Sanchez, and M. Styner, “Robust model-based transformation and averaging of diffusion weighted images – applied to diffusion weighted atlas construction,” in *MICCAI, Workshop on Computational Diffusion MRI*, 2010, <http://wwwx.cs.unc.edu/~mn/?q=content/robust-model-based-transformation-and-averaging-diffusion-weighted-images-%E2%80%93-applied-diffusio>.
- [12] —, D. Borland, S. J. Marron, J. Woolsey, and N. Thomas, “Appearance normalization of histology slides,” in *MICCAI, Workshop on Machine Learning in Medical Imaging*, 2010, <http://wwwx.cs.unc.edu/~mn/?q=content/appearance-normalization-histology-slides>.

- [13] G. Hart, Y. Shi, H. Zhu, M. Sanchez, M. Styner, and —, “DTI longitudinal atlas building as an average of growth models,” in *MICCAI, Workshop on Spatio-Temporal Image Analysis for Longitudinal and Time-Series Image Data*, 2010, <http://www.cs.unc.edu/~mn/?q=content/dti-longitudinal-atlas-construction-average-growth-models>.
- [14] —, A. Boucharin, C. Zach, E. Maltbie, Y. Shi, and M. Styner, “DTI connectivity by segmentation,” in *MICCAI, International Workshop on Medical Imaging and Augmented Reality (MIAR)*, 2010, <http://www.cs.unc.edu/~mn/?q=content/dti-connectivity-segmentation>.
- [15] H.-P. Lee, M. Foskey, —, and M. Lin, “Physically-based deformable image registration with material property and boundary condition estimation,” in *Proceedings of the International Symposium on Biomedical Imaging (ISBI)*, 2010, pp. 532–535, <http://www.cs.unc.edu/~mn/?q=content/physically-based-deformable-image-registration-material-property-and-boundary-condition-esti>.
- [16] L. Shan, C. Zach, and —, “Automatic three-label bone segmentation from knee MR images,” in *Proceedings of the International Symposium on Biomedical Imaging (ISBI)*, 2010, pp. 1325–1328, <http://www.cs.unc.edu/~mn/?q=content/automatic-three-label-bone-segmentation-knee-mr-images>.
- [17] C. Zach, L. Shan, J.-M. Frahm, and —, “Globally optimal Finsler active contours,” in *DAGM-Symposium*, 2009, pp. 552–561, <http://www.cs.unc.edu/~mn/?q=content/globally-optimal-finsler-active-contours>.
- [18] —, G. Hart, and C. Zach, “An optimal control approach for the registration of image time series,” in *Proceedings of the Conference on Decision and Control (CDC)*, 2009, pp. 2427–2434, <http://www.cs.unc.edu/~mn/?q=content/optimal-control-approach-registration-image-time-series>.
- [19] I. Oguz, —, J. Cates, R. Whitaker, T. Fletcher, and M. Styner, “Cortical correspondence with probabilistic fiber connectivity,” in *Proceedings of the Conference on Information Processing in Medical Imaging (IPMI)*, 2009, pp. 651–663, <http://www.cs.unc.edu/~mn/?q=content/cortical-correspondence-probabilistic-fiber-connectivity>.
- [20] M. Macenko, —, J.S. Marron, D. Borland, J.T. Woosley, X. Guan, C. Schmitt, and N.E. Thomas, “A method for normalizing histology slides for quantitative analysis,” in *Proceedings of the International Symposium on Biomedical Imaging (ISBI)*, 2009, pp. 1107–1110, <http://www.cs.unc.edu/~mn/?q=content/method-normalizing-histology-slides-quantitative-analysis>.
- [21] G. Hart, C. Zach, and —, “An optimal control approach for deformable registration,” in *Proceedings of the Workshop on Mathematical Methods in Biomedical Image Analysis (MMBIA)*, 2009, pp. 9–16, <http://www.cs.unc.edu/~mn/?q=content/optimal-control-approach-deformable-registration>.
- [22] C. Zach, —, and J.-M. Frahm, “Continuous maximal flows and Wulff Shapes: Application to MRFs,” in *Proceedings of the Conference on Computer Vision and Pattern Recognition (CVPR)*, 2009, pp. 1911–1918, <http://www.cs.unc.edu/~mn/?q=content/continuous-maximal-flows-and-wulff-shapes-application-mrfs>.
- [23] C. Zach, D. Gallup, J.-M. Frahm, and —, “Fast global labeling for real-time stereo using multiple plane sweeps,” in *Vision, Modeling and Visualization Workshop (VMV)*, 2008, pp. 243–252, <http://www.cs.unc.edu/~mn/?q=content/fast-global-labeling-real-time-stereo-using-multiple-plane-sweeps>.
- [24] V. Mohan, G. Sundaramoorthi, J. Melonakos, —, M. Kubicki, and A. Tannenbaum, “Tubular surface evolution for segmentation of the cingulum bundle from DW-MRI,” in *Foundations of Computational Anatomy Workshop, MICCAI*, 2008, pp. 150–159, <http://www.cs.unc.edu/~mn/?q=content/tubular-surface-evolution-segmentation-cingulum-bundle-dw-mri>.
- [25] —, C. Zach, J. Melonakos, and A. Tannenbaum, “Tubular fiber bundle segmentation for diffusion weighted imaging,” in *Diffusion Weighted Imaging Workshop, MICCAI*, 2008, pp. 265–276, <http://www.cs.unc.edu/~mn/?q=content/tubular-fiber-bundle-segmentation-diffusion-weighted-imaging>.
- [26] H. Kim, —, B. C. Bernhardt, S. Bouix, N. Bernasconi, and A. Bernasconi, “SPHARM detects hippocampal subfield pathology in temporal lobe epilepsy,” in *Proceedings of the ISMRM*, 2008, <http://www.cs.unc.edu/~mn/?q=content/spharm-detects-hippocampal-subfield-pathology-temporal-lobe-epilepsy>.

- [27] J. Melonakos, —, V. Mohan, M. Kubicki, J. Miller, and A. Tannenbaum, “Locally-Constrained Region-Based Methods for DW-MRI Segmentation,” in *Workshop on Mathematical Methods in Biomedical Image Analysis (MMBIA)*, 2007, pp. 1–8, <http://www.cs.unc.edu/~mn/?q=content/locally-constrained-region-based-methods-dw-mri-segmentation>.
- [28] M. Reuter, —, F.-E. Wolter, S. Bouix, and M. E. Shenton, “Global medical shape analysis using the volumetric Laplace spectrum,” in *Proceedings of the Cyberworld Conference*, 2007, pp. 417–426, <http://www.cs.unc.edu/~mn/?q=content/global-medical-shape-analysis-using-volumetric-laplace-spectrum>.
- [29] S. Dambreville, —, A. Yezzi, and A. Tannenbaum, “A variational framework combining level-sets and thresholding,” in *British Machine Vision Conference*, 2007, pp. 1–10, <http://www.cs.unc.edu/~mn/?q=content/variational-framework-combining-level-sets-and-thresholding>.
- [30] V. Mohan, J. Melonakos, —, M. Kubicki, and A. Tannenbaum, “Finsler level set segmentation for imagery in oriented domains,” in *British Machine Vision Conference*, 2007, pp. 1–9, <http://www.cs.unc.edu/~mn/?q=content/finsler-level-set-segmentation-imagery-oriented-domains>.
- [31] G. Kindlmann, R. San Jose Estepar, S. Haker, —, and C.-F. Westin, “Geodesic-loxodromes for diffusion tensor interpolation and difference measurement,” in *Proceedings of the Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI)*, 2007, pp. 1–9, <http://www.cs.unc.edu/~mn/?q=content/geodesic-loxodromes-diffusion-tensor-interpolation-and-difference-measurement>.
- [32] —, M. Reuter, F.-E. Wolter, S. Bouix, N. Peinecke, M.-S. Koo, and M. E. Shenton, “Global medical shape analysis using the Laplace-Beltrami spectrum,” in *Proceedings of the Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI)*, 2007, pp. 850–857, <http://www.cs.unc.edu/~mn/?q=content/global-medical-shape-analysis-using-laplace-beltrami-spectrum>.
- [33] —, S. Bouix, C.-F. Westin, and M. E. Shenton, “Outlier rejection for diffusion weighted imaging,” in *Proceedings of the Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI)*, 2007, pp. 161–168, <http://www.cs.unc.edu/~mn/?q=content/outlier-rejection-diffusion-weighted-imaging>.
- [34] J. Melonakos, V. Mohan, —, K. Smith, M. Kubicki, and A. Tannenbaum, “Finsler tractography for white matter connectivity analysis of the cingulum bundle,” in *Proceedings of the Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI)*, 2007, pp. 36–43, <http://www.cs.unc.edu/~mn/?q=content/finsler-tractography-white-matter-connectivity-analysis-cingulum-bundle>.
- [35] S. Dambreville —, A. Yezzi, and A. Tannenbaum, “A variational segmentation framework using active contours and thresholding,” in *Proceedings of the International Conference on Signal and Image Processing (SIP)*, 2007, pp. 180–185, <http://www.cs.unc.edu/~mn/?q=content/variational-segmentation-framework-using-active-contours-and-thresholding>.
- [36] D. Nain, M. Styner, —, J. J. Levitt, M. Shenton, G. Gerig, and A. Tannenbaum, “Statistical shape analysis of brain structures using spherical wavelets,” in *Proceedings of the Fourth IEEE International Symposium on Biomedical Imaging.*, 2006, pp. 209–212, <http://www.cs.unc.edu/~mn/?q=content/statistical-shape-analysis-brain-structures-using-spherical-wavelets>.
- [37] —, S. Bouix, C.-F. Westin, and M. Shenton, “Fiber bundle estimation and parameterization,” in *Proceedings of the Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI)*, 2006, pp. 252–259, <http://www.cs.unc.edu/~mn/?q=content/fiber-bundle-estimation-and-parameterization>.
- [38] —, R. San Jose Estepar, S. Bouix, M. Shenton, and C.-F. Westin, “On diffusion tensor estimation,” in *Proceedings of the International Engineering in Medicine and Biology Conference (EMBC)*, 2006, pp. 2622–2625, <http://www.cs.unc.edu/~mn/?q=content/diffusion-tensor-estimation>.
- [39] —, P. A. Vela, and A. Tannenbaum, “Geometric observers for dynamically evolving curves,” in *Proceedings of the Conference on Decision and Control*, 2005, pp. 6071–6077, <http://www.cs.unc.edu/~mn/?q=content/geometric-observers-dynamically-evolving-curves-0>.

- [40] P. A. Vela, —, J. Malcolm, and A. Tannenbaum, “Closed loop visual tracking using observer-based dynamic active contours,” in *Proceedings of the Conference on Guidance Navigation and Control*, 2005, <http://wwwx.cs.unc.edu/~mn/?q=content/closed-loop-visual-tracking-using-observer-based-dynamic-active-contours>.
- [41] J. Ha, C. Alvino, G. Pryor, —, E. Johnson, and A. Tannenbaum, “Active contours and optical flow for automatic tracking of flying vehicles,” in *Proceedings of the American Control Conference*, 2004, vol. 4, pp. 3441–3446, <http://wwwx.cs.unc.edu/~mn/?q=content/active-contours-and-optical-flow-automatic-tracking-flying-vehicles>.
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OTHER PUBLICATIONS

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- [2] M. Niethammer, *Dynamic Level Sets for Visual Tracking*, Ph.D. thesis, Georgia Institute of Technology, 2004.
- [3] M. Niethammer, “An approach towards nonlinear continuous-time system identification,” M.S. thesis, Universität Stuttgart, 2000.
- [4] M. Niethammer, “Application of time-frequency representations to characterize ultrasonic signals,” M.S. thesis, Georgia Institute of Technology, 1999.
- [5] M. Niethammer, “Reglerentwurf für ein Fahrzeug mit lenkbarer Vorder- und Hinterachse,” Tech. Rep., Daimler-Chrysler, Esslingen, 2000.

FREELY AVAILABLE SOFTWARE

- [1] A. T. Vega, S. Aja-Fernandez, and —, “Rician LMMSE image filter,” part of Slicer3 and Slicer4.
- [2] G. Hart, M. Styner, and —, “Fluid registration and atlas toolkit,” Hosted on NITRC: <http://www.nitrc.org/projects/frat/>.
- [3] B. Paniagua, M. Styner, M. Macenko, D. Pantazis, and —, “Shape analysis with MANCOVA,” Hosted by the Insight Journal: <http://hdl.handle.net/10380/3124>.

TEACHING EXPERIENCE

**Department of Computer Science,
UNC Chapel Hill, Chapel Hill, NC, USA**

Fall 2011	COMP 116	Introduction to Scientific Programming	(80 students)
Fall 2010	COMP 775	Medical Image Analysis	(16 students)
Spring 2010	COMP 790	Optimal Estimation in Image Analysis	(10 students)
Fall 2009	COMP 116	Introduction to Scientific Programming	(36 students)
Spring 2009	COMP 790	Optimal Estimation in Image Analysis – <i>new course</i>	(8 students)
Fall 2008	COMP 775	Introduction to Medical Image Analysis – <i>new course</i>	(16 students)
Spring 2008	COMP 875	Recent Advances in Image Analysis – <i>seminar</i>	(4 students)

**Institute for Systems Theory in Engineering,
Universität Stuttgart, Stuttgart, Germany**

04/00–05/01 Assisted in teaching the graduate courses *Control Theory I and II*.

PROFESSIONAL SERVICE

Membership in Professional Societies

since 2005	Medical Image Computing and Computer Assisted Intervention (MICCAI) Society
since 2002	Institute of Electrical and Electronics Engineers (IEEE)
2002-2004	Society of Industrial and Applied Mathematics (SIAM)

Conference Committees

2011-2012	Program committee for the Workshop on Machine Learning in Medical Imaging (in conjunction with MICCAI'11)
2011	Program committee for the Workshop on Mathematical Foundations of Computational Anatomy (in conjunction with MICCAI'11)
2010	Session chair MICCAI, Workshop on Machine Learning in Medical Imaging
2010	Session chair MICCAI, Workshop on Spatio-Temporal Image Analysis for Longitudinal and Time-Series Image Data
2009-2010	Session co-chair, Conference on Decision and Control
2010	Program committee for the International Conference on Pattern Recognition (ICPR)
2010	Technical committee for the Asian Conference on Computer Vision
2009	Program committee for the Workshop on Probabilistic Models for Medical Image Analysis (MICCAI)
2008-2009	Judge in the Kitware visualization contest (MICCAI)
2008	Program committee for the Workshop on Tensors in Image Processing and Computer Vision (CVPR)

2007 Program committee for the Workshop on “New Advances in Shape Analysis and Geometric Modeling” (NASAGEM; Cyberworlds)

Workshops/Special Sessions

2012 Co-organizer of the Workshop on “Spatiotemporal Image Analysis for Longitudinal and Time-Series Image Data (STIA)” at the Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI)

2010 Co-organizer of the Workshop on “Medical Image Analysis For The Clinic – A Grand Challenge” at the Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI)

2009, 2010 Co-organizer of the Special Session on “Images in the Loop: Control Theory Meets Image Analysis” at the Conference of Decision and Control (CDC)

Ph.D. Committees

2012 -	Joohee Lee	UNC-CS	Principal advisor:	Prof. Martin Styner
2012 -	Qian Wang	UNC-CS	Principal advisor:	Prof. Dinggang Shen
2011 -	Sachin Patil	UNC-CS	Principal advisor:	Prof. Ron Alterovitz
2011 -	Jamie Snape	UNC-CS	Principal advisor:	Prof. Dinesh Manocha
2011 -	Chen-Rui Chou	UNC-CS	Principal advisor:	Prof. Stephen Pizer
2011 -	Gregory M. Sturgeon	UNC/NCSU BMME	Principal advisor:	Prof. Paul Segars
2011-	Stephen Guy	UNC-CS	Principal advisor:	Prof. Ming Lin
2011	Anish Chandak	UNC-CS	Principal advisor:	Prof. Dinesh Manocha
2009-2011	Rohit Saboo	UNC-CS	Principal advisor:	Prof. Stephen Pizer
2009-2011	Ilknur Kaynar-Kabul	UNC-CS	Principal advisor:	Prof. Stephen Pizer
2009-2010	Xiaoxiao Liu	UNC-CS	Principal advisor:	Prof. Stephen Pizer
2009-2010	David Feng	UNC-CS	Principal advisor:	Prof. Russ Taylor
2009-	Cory Quammen	UNC-CS	Principal advisor:	Prof. Russ Taylor
2009	Brian Eastwood	UNC-CS	Principal advisor:	Prof. Russ Taylor
2009	Ipek Oguz	UNC-CS	Principal advisor:	Prof. Martin Styner
2009	Nikunj Raghuvanshi	UNC-CS	Principal advisor:	Prof. Ming Lin
2009	Shawn Lankton	GaTech-ECE	Principal advisor:	Prof. Allen Tannenbaum
2008	Joshua Stough	UNC-CS	Principal advisor:	Prof. Stephen Pizer
2008	Samuel Dambreville	GaTech-ECE	Principal advisor:	Prof. Allen Tannenbaum
2008	John Melonakos	GaTech-ECE	Principal advisor:	Prof. Allen Tannenbaum

Administrative Committees

2012 Committee on Research Funding

2010-2011 Computer Science Graduate Admission Committee

Panels

2010 National Science Foundation (program suppressed for anonymity)

Conference Reviewing

2010 International Conference on Pattern Recognition (ICPR)

2009 American Control Conference (ACC)

2004, 2009 Conference on Decision and Control (CDC)

2006 International Symposium on Biomedical Imaging (ISBI)

2007 Workshop on Mathematical Methods in Biomedical Image Analysis (MMBIA)

2006, 2008–2012 Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI)

2008-2010 Conference on Computer Vision and Pattern Recognition (CVPR)

2009, 2011 International Conference on Computer Vision (ICCV)

2009 IEEE Visualization Conference (VIS)

Journal Reviewing

2003	Journal of Engineering Mechanics
2004	Geophysical Journal International
2005	Signal Processing
2007	Journal of Mathematical Imaging and Vision
2005–2008, 2011	IEEE Transactions on Pattern Analysis and Machine Intelligence
2008, 2011–2012	International Journal of Computer Vision
2008	IEEE Transactions on Information Technology in Biomedicine
2008–2010	NeuroImage
2007–2008	SIAM Journal on Imaging Sciences
2006–2009, 2011	IEEE Transactions on Medical Imaging
2006–2011	Medical Image Analysis
2009	Ultrasonics
2004, 2009	Journal of the Acoustical Society of America