

# Nicholas J. Tustison

University of Virginia  
Department of Radiology and Medical  
Imaging

- EDUCATION
- ◇ **University of Pennsylvania**, Philadelphia, PA.  
Post-doctoral fellowship, September 2005.
  - ◇ **Washington University in St. Louis**, St. Louis, MO.  
D.Sc. in Biomedical Engineering, August 2004.  
Thesis title: *Biventricular Myocardial Strains With Anatomical NURBS Models From Tagged MRI*.
  - ◇ **University of Virginia**, Charlottesville, VA.  
M.S. in Biomedical Engineering, May 2000.  
Thesis title: *Quantification Methods for Assessing Asthma in Hyperpolarized  $^3\text{He}$  Lung MRI Studies*.
  - ◇ **Brigham Young University**, Provo, UT.  
B.S. in Applied Physics: Computer Science Emphasis, April 1998.  
Minor: Mathematics
  - ◇ **Scholarships**
    - UVa School of Engineering merit award
    - UVa Biomedical Engineering merit award
    - BYU Trustees Scholarship (Full tuition+4 years)
- WORK EXPERIENCE
- ◇ **Assistant Professor**, Department of Radiology and Medical Imaging, University of Virginia (July 2010–present)
  - ◇ **Senior Research Investigator**, Penn Image Computing and Science Laboratory, Radiology Department, University of Pennsylvania (September 2005–July 2010)
  - ◇ **Research Fellow**, Penn Image Computing and Science Laboratory, Radiology Department, University of Pennsylvania (August 2004–September 2005)
  - ◇ **Research Assistant**, Cardiovascular Image Analysis Laboratory, Washington University in St. Louis (August 2000–August 2004)
  - ◇ **Research Assistant**, Radiology Department, University of Virginia Health Sciences Center (May 1998–June 2000)
  - ◇ **Teaching Assistant**, Physics Department, Brigham Young University (September 1996–May 1998)
  - ◇ **Teaching Assistant**, Math Department, Utah Valley State College (May 1996–May 1997)
- RESEARCH INTERESTS
- digital topology, image registration and segmentation, open source software, translational research
- SKILLS
- C/C++, Insight Toolkit, Paraview, perl, Visualization Toolkit, Matlab, R  
Fluent: Spanish
- AWARDS
- Won the MICCAI 2013 Challenge on Multimodal Brain Tumor Segmentation.
- PROGRAM COMMITTEES
- SPIE Medical Imaging 2012–

EDITORSHIPS	Frontiers Review Editorial Board May 2012–
REVIEWER	Academic Radiology
DUTIES	Annals of Biomedical Engineering
	Computers in Biology and Medicine
	Focused Ultrasound Foundation ad hoc grant reviewer
	Image and Vision Computing
	International Journal of Pattern Recognition and Artificial Intelligence
	IEEE Transactions on Medical Imaging
	IEEE Transactions on Pattern Analysis and Machine Intelligence
	IEEE Transactions on Biomedical Engineering
	Insight Journal
	International Conference on Medical Image Computing and Computer Assisted Intervention
	International Journal of Biomedical Imaging
	International Journal of Computer Vision
	International Workshop on Medical Imaging and Augmented Reality
	IEEE International Symposium on Biomedical Imaging: From Nano to Macro
	Journal of Computed Tomography
	Journal of Electronic Imaging
	Journal of Magnetic Resonance Imaging
	Journal of Neurotrauma
	Journal of the Optical Society of America A
	Magnetic Resonance in Medicine
	Medical Physics
	Medical Image Analysis
	Neuroradiology
	Respirology
RESEARCH	<b>Journal Manuscripts</b>
	Tustison NJ and Avants BB: Explicit B-spline regularization in diffeomorphic image registration, <i>Frontiers in Neuroscience</i> , submitted.
	Tustison NJ, Cook PA, Song G, Das SR, Duda JR, Kandel BM, van Strien N, Stone JR, Gee JC, Avants BB: Large-scale cortical thickness quantification with Advanced Normalization Tools (ANTs), <i>NeuroImage</i> , submitted.
	Tustison NJ, Contrella B, Altes TA, Avants BB, de Lange EE, Mugler III JP: Voxel-based Longitudinal Analysis of Pulmonary Ventilation MRI, <i>Journal of Magnetic Resonance Imaging</i> , submitted.
	Tustison NJ, Avants BB, Cook PA, Kim J, Whyte J, Gee JC, Stone JR: Logical Circularity in Voxel-Based Analysis: normalization strategy may induce statistical bias, <i>Human Brain Mapping</i> , accepted.
	Tustison NJ, Johnson H, Rohlfing T, Klein A, Ghosh S, Ibanez L, Avants BB: Instrumentation bias in the use and evaluation of scientific software: Recommendations for reproducible practices in the computational sciences, <i>Frontiers in Neuroscience</i> , 7(162).

- Song G, Barbosa JR EM, Tustison NJ, Geftter WB, Kreider M, Gee JC, Torigian DA: A Comparative Study of HRCT Image Metrics and PFT Values for Characterization of ILD and COPD, *Academic Radiology*, 19(7):857–64, July 2012.
- Yilmaz C, Tustison NJ, Dane DM, Ravikumar P, Takahashi M, Gee JC, Hsia CCW: Functional computed tomography: Progressive adaptation in regional mechanics following extensive lung resection, *Journal of Applied Physiology*, 111(4):1150–8, October 2011.
- Avants BB\*, Tustison NJ\*, Wu J, Cook PA, Gee JC: An Open Source Framework for  $n$ -Tissue Segmentation with Evaluation on Public Data, *Neuroinformatics*, 9(4):381–400, December 2011.
- \*Joint first authorship.
- Murphy K, van Ginneken B, Reinhardt JM, . . . , Tustison NJ, . . . , Pluim JPW: Evaluation of Registration Methods on Thoracic CT: The EMPIRE10 Challenge, *IEEE Transactions on Medical Imaging*, 30(11):1901–20, November 2011.
- Tustison NJ, Avants BB, Altes TA, de Lange EE, Mugler III JP, Gee JC: Ventilation-Based Segmentation of the Lungs Using Hyperpolarized  $^3\text{He}$  MRI, *Journal of Magnetic Resonance Imaging*, 34(4):831–841, October 2011.
- Barbosa Jr EM, Song G, Tustison N, Kreider M, Gee JC, Geftter W, Torigian DA: Computational Analysis of Thoracic Multidetector Row HRCT for Segmentation and Quantification of Small Airway Air Trapping and Emphysema in Obstructive Pulmonary Disease, *Academic Radiology*, 18(10):1258–1269, October 2011.
- Tustison NJ, Avants BB, Siqueira M, Gee JC: Topological Well-Composedness and Glamorous Glue: A Digital Gluing Algorithm for Topologically Constrained Level Set Segmentation, *IEEE Transactions on Image Processing*, 20(6):1756–1771, June 2011.
- Tustison NJ, Cook TS, Song G, Gee JC: Pulmonary Kinematics from Image Data—A Review, *Academic Radiology*, 18(4):402–417, April 2011.
- Tustison NJ, Awate SP, Song G, Cook TS, Gee JC: Point Set Registration Using Havrda-Charvat-Tsallis Entropy Measures. *IEEE Transactions on Medical Imaging*, 30(2):451–460, February 2011.
- Avants BB, Tustison NJ, Song G, Cook PA, Klein A, Gee JC: A Reproducible Evaluation of ANTs Similarity Metric Performance in Brain Image Registration, *Neuroimage*, 54(3):2033–2044, February 2011.
- Tustison NJ, Avants BB, Cook PA, Egan A, Zheng Y, Yushkevich PA, Gee JC: N4ITK: Improved N3 Bias Correction, *IEEE Transactions on Medical Imaging*, 29(6):1310–1320, June 2010.
- Tustison NJ, Altes TA, Song G, de Lange EE, Mugler III JP, Gee JC: Feature Analysis of Hyperpolarized Helium-3 Pulmonary MRI: A Study of Asthmatics versus Non-Asthmatics, *Magnetic Resonance in Medicine*, 63(6):1448–1455, June 2010.
- Tustison NJ, Awate SP, Cai J, Altes TA, Miller GW, de Lange EE, Mugler III JP, Gee JC: Pulmonary Kinematics from Tagged Hyperpolarized Helium-3 MRI, *Journal of Magnetic Resonance Imaging*, 31(5):1236–1241, May 2010.
- Tustison NJ, Avants BB, Gee JC: Directly manipulated free-form deformation image registration. *IEEE Transactions on Image Processing* 18(3):624–35, March 2009.
- Siqueira M, Latecki LJ, Tustison N, Gallier J, Gee J: Topological Repairing of 3D Digital Images. *Journal of Mathematical Imaging and Vision* 30(3):249–274, March 2008.
- Tustison NJ, Amini AA: Biventricular myocardial strains via nonrigid registration of anatomical NURBS model. *IEEE Transactions on Medical Imaging* 25(1):94–112, January 2006.

Tustison NJ, Amini AA: Myocardial kinematics from tagged MRI based on a 4-D B-spline model. *IEEE Transactions on Biomedical Engineering* 50(8):1038–1040, August 2003.

Hagspiel KD, Altes TA, Mugler III JP, Mata JF, Tustison NJ, Brookeman JR: MR virtual colonography using hyperpolarized  $^3\text{He}$  as an endoluminal contrast agent: demonstration of feasibility. *Magnetic Resonance in Medicine* 44(5):813, November 2000.

### Conference Proceedings

Tustison NJ, Wintermark M, Durst C, Avants BB. ANTs and Árboles. MICCAI 2013 Challenge on Multimodal Brain Tumor Segmentation: 47.

Durst C, Raghavan P, Tustison N, Patrie, J, Cupino A, Xin W, Wintermark M. Multiparametric Imaging Model to Accurately Predict Extent of Invasion of High-Grade Gliomas. ASNR Scientific Paper (Oral), 2013.

Tustison NJ, Muratore A, Contrella B, Mugler III JP, de Lange EE, and Altes TA: In *Proceedings of the 21<sup>st</sup> Voxelwise Comparison of Hyperpolarized He-3 and Xe-129 Lung Ventilation MR Imaging in Cystic Fibrosis. Annual Meeting of the International Society for Magnetic Resonance in Medicine (ISMRM)*, Salt Lake City, 2013.

Tustison NJ, Avants BB, Cook PA, Song G, Das S, van Strien N, Stone JR, Gee JC: The ANTs Cortical Thickness Processing Pipeline. In: *SPIE Medical Imaging: Biomedical Applications in Molecular, Structural, and Functional Imaging*. Orlando 2013.

Tustison NJ, Contrella B, Altes TA, Avants BB, de Lange EE, Mugler III JP: Longitudinal assessment of treatment effects on pulmonary ventilation using  $^1\text{H}/^3\text{He}$  MRI multivariate templates. In: *SPIE Medical Imaging: Biomedical Applications in Molecular, Structural, and Functional Imaging*. Orlando 2013.

Tustison NJ, Avants BB, Cook PA, Gee JC, Stone JR: Statistical Bias in Optimized VBM. In: *SPIE Medical Imaging: Biomedical Applications in Molecular, Structural, and Functional Imaging*. Orlando 2013.

Tustison NJ, Avants BB: Diffeomorphic Directly Manipulated Free-Form Deformation Image Registration via Vector Field Flows. In: *Proceedings of the Workshop on Biomedical Image Registration*. Nashville 2012.

Avants BB, Tustison NJ, Song G, Wu B, Stauffer M, McCormick MM, Johnson HJ, Gee JC, Insight Software Consortium: A Unified Image Registration Framework for ITK4. In: *Proceedings of the Workshop on Biomedical Image Registration*. Nashville 2012.

Contrella B, Tustison NJ, Altes TA, Avants BB, Mugler III JP, de Lange EE: 4D segmentation and normalization of  $^3\text{He}$  MR images for intra-subject assessment of ventilated lung volumes. In: *SPIE Medical Imaging: Biomedical Applications in Molecular, Structural, and Functional Imaging*. San Diego 2012.

Zheng Y, Keller B, Wang Y, Tustison N, Song G, Bakic PR, Maidment AD, Conant EF, Gee JC, Kontos D: A Fully-Automated Software Pipeline for Parenchymal Pattern Analysis in Digital Breast Images: Towards the Translation of Imaging Biomarkers in Routine Breast Cancer Risk Assessment. In: *The Quantitative Imaging Reading Room Showcase at RSNA 2011 Annual Meeting and Scientific Assembly*, Chicago 2011.

Tustison NJ, Avants BB, Cook P, Kim J, Whyte J, Gee JC, Ahlers S, Stone J: Multivariate Analysis of Diffusion Tensor Imaging and Cortical Thickness Maps in a Traumatic Brain Injury (TBI) Cohort Using Advanced Normalization Tools (ANTs). In: *Proceedings of the 2011 annual meeting of the National Neurotrauma Society*, Fort Lauderdale, 2011.

Qing K, Altes TA, Tustison NJ, Mata JF, Miller GW, de Lange EE, Tobias WA, Cates GD, Brookeman JR, Mugler JP: Acquisition of Spatially-registered Helium-3 and Proton 3D Image Sets of the Lung in less than 10 seconds using Compressed

Sensing. In *Proceedings of the 19<sup>th</sup> Annual Meeting of the International Society for Magnetic Resonance in Medicine (ISMRM)*, Montreal, 2011.

Tustison NJ, Avants BB, Flors L, Altes TA, de Lange EE, Mugler II JP, Gee JC: Segmentation of Lung Ventilation Defects Using Hyperpolarized  $^3\text{He}$  MRI. In: *Proceedings of the 2011 International Functional Pulmonary Imaging Workshop*, Philadelphia, 2011.

Tustison NJ, Avants BB, Flors L, Altes TA, de Lange EE, Mugler II JP, Gee JC: Ventilation-Based Segmentation of the Lungs Using Hyperpolarized Helium-3 MRI. In: *Joint Meeting combining The 3rd meeting of the Japanese Society of Pulmonary Functional Imaging and 5th International Workshop for Pulmonary Functional Imaging*, Hyogo, 2011.

Hsia CCW, Yilmaz C, Tustison NJ, Dane DM, Ravikumark P, Takahashi M, Gee JC: Non-invasive measurement of regional mechanical strain and shear following extensive lung resection by high-resolution computed tomography (HRCT). In: *Proceedings of the American Thoracic Society International Conference*, Denver, 2011.

Song G, Tustison NJ, Avants BB, Gee JC: Lung CT Image Registration Using Diffeomorphic Transformation Models. In: *Proceedings of the Evaluation of Methods for Pulmonary Image Registration (EMPIRE) Grand Challenge* organized by the 13th International Conference on Medical Image Computing and Computer Assisted Intervention, Beijing, 2010.

Tustison NJ, Avants BB, Altes TA, Mugler II JP, Gee JC: Automatic Segmentation of Ventilation Defects in Hyperpolarized  $^3\text{He}$  MRI. In: *Proceedings of the Annual Meeting of the Biomedical Engineering Society*, Austin, 2010.

Avants B, Cook PA, McMillan C, Grossman M, Tustison NJ, Zheng Y, Gee JC: Sparse Unbiased Analysis of Anatomical Variance in Longitudinal Imaging. In: *Proceedings of the Medical Image Computing and Computer Assisted Intervention Society (MICCAI)*, Beijing, 2010.

Avants B, Klein A, Tustison N, Woo J, Gee J: Evaluation of an Open-Access, Automated Brain Extraction Method on Multi-Site Multi-Disorder Data. In: *Proceedings of the 16<sup>th</sup> Annual Meeting of the Organization for Human Brain Mapping (HBM)*, Barcelona, 2010.

Wright AC, Yoder J, Tustison N, Gee J, Wehrli FW, Elliot DM: High-Resolution MRI at 7T of Local Strains in the Intervertebral Disc. In: *Proceedings of the 18<sup>th</sup> Annual Meeting of the International Society for Magnetic Resonance in Medicine (ISMRM)*, Stockholm, 2010.

Tustison NJ, Altes TA, Miller GW, de Lange EE, Mugler JP, Gee JC: Retrospective Bias Correction of Hyperpolarized  $^3\text{He}$  MRI of the Lung. In: *Proceedings of the 18<sup>th</sup> Annual Meeting of the International Society for Magnetic Resonance in Medicine (ISMRM)*, Stockholm, 2010.

Tustison NJ, Altes TA, Song G, de Lange EE, Mugler JP, Gee JC: Hyperpolarized  $^3\text{He}$  Image Feature Analysis in Asthmatics. In: *Proceedings of the 18<sup>th</sup> Annual Meeting of the International Society for Magnetic Resonance in Medicine (ISMRM)*, Stockholm, 2010.

Tustison NJ, Avants BB, Cook P, Gee J: N4ITK: Improved N3 Bias Correction with Robust B-Spline Approximation. In: *Proceedings of the 7<sup>th</sup> Annual IEEE International Symposium on Biomedical Imaging: From Nano to Macro (ISBI)*, Rotterdam, 2010.

Tustison NJ, Altes TA, Song G, Mugler JP, de Lange EE, Gee JC: Feature Analysis of Hyperpolarized Helium-3 Pulmonary MRI in Asthmatics versus Non-Asthmatics. In: *Proceedings of the 2<sup>nd</sup> International Workshop on Pulmonary Image Analysis*, London, 2009.

- Cook TS, Tustison NJ, Song G, Awate SP, Torigian DA, Geftter W, Gee JC: Segmentation-Based Quantitation of Pulmonary Alveolar Proteinosis, Pre- and Post-Lavage, Using High-Resolution Computed Tomography. In: *Proceedings of the 2<sup>nd</sup> International Workshop on Pulmonary Image Analysis*, London, 2009.
- Song G, Tustison NJ, Barbosa Jr E, Gee JC, Geftter W, Kreider M, Torigian DA: A Comparative Study of HRCT Image Metrics and PFT Values for Characterization of ILD and COPD. In: *Proceedings of the 2<sup>nd</sup> International Workshop on Pulmonary Image Analysis*, London, 2009.
- Tustison NJ, Awate SP, Song G, Cook T, Gee JC: A new information-theoretic measure to control the robustness-sensitivity trade-off for DMFFD point-set registration. In: *Proceedings of the 21<sup>st</sup> Biennial International Conference on Information Processing in Medical Imaging (IPMI)*, Williamsburg, 215–226, 2009.
- Cook T, Barbosa E, Tustison N, Song G, Torigian D, Koo C, Geftter W, Gee J: Quantitation of Pulmonary Alveolar Proteinosis, Pre- and Post-Lavage: A Feasibility Study. In: *Proceedings of the 2<sup>nd</sup> World Congress of Thoracic Imaging and Diagnosis in Chest Disease*, Valencia, 2009.
- Barbosa E, Song G, Tustison N, Torigian D, Kreider M, Koo C, Geftter W, Gee J: Computational Analysis of HRCT for characterization and differentiation of ILD and COPD. In: *Proceedings of the 2<sup>nd</sup> World Congress of Thoracic Imaging and Diagnosis in Chest Disease*, Valencia, 2009.
- Song G, Barbosa E, Tustison N, Torigian D, Kreider M, Koo C, Geftter W, Gee J: Computational Analysis of HRCT Images For Characterization and Differentiation of ILD and COPD. In: *Proceedings of the 6<sup>th</sup> Annual IEEE International Symposium on Biomedical Imaging: From Nano to Macro (ISBI)*, Boston, 2009.
- Tustison NJ, Kotzer CJ, Logan GA, Podolin PL, Altes TA, Wright AP, Song G, Zhao H, Haczku A, Barnette MS, Panettieri Jr RA, Gee JC: Detection of elastase induced emphysema in free-breathing mice using micro computed tomography (CT). In: *Proceedings of the Annual International Conference of the American Thoracic Society*, Toronto, 2008.
- Tustison NJ, Cai J, Altes TA, Miller GW, de Lange EE, Mugler JP, Gee JC: Pulmonary Kinematics From 3-D Hyperpolarized Helium-3 Tagged Magnetic Resonance Imaging. In: *Proceedings of the 16<sup>th</sup> Annual Meeting of the International Society for Magnetic Resonance in Medicine (ISMRM)*, Toronto, 2008.
- Tustison N, Awate SP, Cai J, Altes T, Miller G, Lange E, Mugler J, Gee JC: Point-set registration of tagged He-3 images using a structurally-based Jensen-Shannon divergence measure within a deterministic-annealing framework. In: *Proceedings of the 5<sup>th</sup> Annual IEEE International Symposium on Biomedical Imaging: From Nano to Macro (ISBI)*, pp. 772–775, Paris, 2008.
- Tustison NJ, Altes TA, Gee JC, Cai J, de Lange EE, Mugler III JP: Pulmonary Kinematics From Hyperpolarized Helium-3 Tagged Magnetic Resonance Imaging. In: *Proceedings of the 4<sup>th</sup> Annual IEEE International Symposium on Biomedical Imaging: From Nano to Macro (ISBI)*, pp. 368–371, Washington D.C., 2007.
- Cook TS, Tustison N, Biederer J, Tetzlaff R, Gee J: How do registration parameters affect quantitation of lung kinematics? In: *Proceedings of the 10<sup>th</sup> International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI)*, 10(Pt 1):817–24, 2007.
- Tustison NJ, Avants BB, Gee JC: Improved FFD B-Spline Image Registration. *Proceedings of the 11<sup>th</sup> Biennial IEEE International Conference on Computer Vision (ICCV)*, pp. 1–8, Rio de Janeiro, 2007.
- Tustison NJ, Gee, JC: Generalized  $n$ -D  $C^k$  B-spline scattered data approximation with confidence values. *Proceedings of the 3<sup>rd</sup> International Workshop on Medical Imaging and Augmented Reality (MIAR)*, pp. 76–83, Shanghai, 2006.

Tustison NJ, Avants BB, Sundaram TA, Duda JT, Gee JC: A Generalization of Free-Form Deformation Image Registration Within the ITK Finite Element Framework. *Proceedings of the 3<sup>rd</sup> International Workshop on Biomedical Image Registration (WBIR)*, pp. 238–246, Utrecht, 2006.

Song Z, Tustison NJ, Avants BB, Gee JC: Adaptive graph cuts with tissue priors for brain MRI segmentation. In: *Proceedings of the 3<sup>rd</sup> Annual IEEE International Symposium on Biomedical Imaging: From Nano to Macro (ISBI)*, pp. 762–765, Arlington, 2006.

Chen J, Tustison NJ, Amini AA: Accurate recovery of 4D left ventricular deformations using volumetric B-splines incorporating phase based displacement estimates. In: *Proceedings of SPIE: Medical Imaging 2006: Physiology, Function, and Structure from Medical Images*, 6143, San Diego, 2006.

Tustison NJ, Amini AA: Comparison of parallel and spiral tagged MR imaging geometries in estimation of 3D myocardial strains. In: *Proceedings of SPIE: Medical Imaging 2005: Physiology, Function, and Structure from Medical Images*, 5746:571–579, San Diego, 2005.

Tustison NJ, Amini AA: Lagrangian and Eulerian biventricular strains from anatomical NURBS models using tagged MRI. In: *Proceedings of SPIE: Medical Imaging 2006: Physiology, Function, and Structure from Medical Images*, 5746:192–204, San Diego, 2005.

Tustison NJ, Abendschein D, Amini AA: Biventricular myocardial kinematics based on tagged MRI from anatomical NURBS models. In: *Proceedings of the IEEE Computer Vision and Pattern Recognition (CVPR)*, 2:514, Quebec City, 2004.

Tustison NJ, Amini AA: Myocardial Kinematics Based on Tagged MRI From Geometric Deformable Models. *Proceedings of SPIE: Medical Imaging 2006: Physiology, Function, and Structure from Medical Images*, 5369:22–33, San Diego, 2004.

Tustison NJ, Amini AA: Tracking Myocardial Beads from SPAMM-MRI with a 4-D B-Spline Model. In: *Proceedings of the 2<sup>nd</sup> Joint EMBS/BMES Conference*, pp. 993–994, Houston, 2002.

Tustison NJ, Abendschein D, Davila-Roman VG, Amini AA: Myocardial Strain Imaging with Tagged MRI. In: *Proceedings of the 16<sup>th</sup> International Conference on Pattern Recognition (ICPR)*, 1:723–726, Quebec City, 2002.

Cooley B, Acton ST, Salerno M, Brookeman JR, Tustison NJ, de Lange EE, Altes TA: Automated Scoring of Hyperpolarized Helium-3 MR Lung Ventilation Images: Initial Development and Validation. In: *Proceedings of the 11<sup>th</sup> Annual Meeting of the International Society for Magnetic Resonance in Medicine (ISMRM)*, Honolulu, 2002.

Tustison NJ, Yablonskiy D, Conradi M, Amini AA: Deformable Registration of 3HeMR and X-ray CT images of the lungs. In: *Proceedings of the 11<sup>th</sup> Annual Meeting of the International Society for Magnetic Resonance in Medicine (ISMRM)*, Honolulu, 2002.

Spellman MJ, Hagspiel KD, Altes TA, Mugler III JP, Mata JF, Tustison NJ, Brookeman JR: MR Virtual Colonoscopy using Hyperpolarized <sup>3</sup>He as an Endoluminal Contrast Agent. In: *Proceedings of the 8<sup>th</sup> Annual Meeting of the International Society for Magnetic Resonance in Medicine (ISMRM)*, Philadelphia, 1999.

## Book Chapters

Tustison NJ, Amini AA: Analysis of 4-D Cardiac MR Data with NURBS Deformable Models: Temporal Fitting Strategy and Nonrigid Registration. Parametric and Geometric Deformable Models: An Application in Biomaterials and Medical Imagery. Jasjit S. Suri and Aly Farag (eds.). Springer Publishers, II, May 2007.

## Invited Talks

Stone JR, Tustison NJ: Understanding the Inside of the Black Box: Optimizing Approaches for the Analysis of Diffusion Tensor Imaging and Cortical Maps in TBI, *Keystone Symposia on Molecular and Cellular Biology*. Keystone 2012.

Tustison NJ: Open Source Software Tools for Lung Image Analysis, *SPIE Medical Imaging: Biomedical Applications in Molecular, Structural, and Functional Imaging*. San Diego 2012.

### Other Articles

Tustison NJ: RGB Colormapping and ITK. *The Source: Kitware's Software Developer Quarterly*, January 2009, [http://www.kitware.com/products/archive/kitware\\_quarterly\\_0709.pdf](http://www.kitware.com/products/archive/kitware_quarterly_0709.pdf).

Tustison NJ: N4ITK: Nick's N3 ITK Implementation for MRI Bias Field Correction. *The Source: Kitware's Software Developer Quarterly*, January 2010, [http://www.kitware.com/products/archive/kitware\\_quarterly0110.pdf](http://www.kitware.com/products/archive/kitware_quarterly0110.pdf).

### Open Source Software

Tustison NJ, Avants BB: The TVDMFFDVR Algorithm, *Insight Journal* 2012, <http://hdl.handle.net/10380/3334>.

Tustison NJ, Cook PA, Avants BB, Stone JR: Simulated Diffusion-Weighted Imaging for the ITK Masses, *Insight Journal* 2011, <http://hdl.handle.net/10380/3315>.

Tustison NJ, Avants BB, Siqueira M, Gee JC: Escher's Ants as Metaphor: Topological Marching for the Well-Composed, Genus Zero Crowd, *Insight Journal* 2010, <http://hdl.handle.net/10380/3234>.

Tustison NJ, Gee JC: Introducing Dice, Jaccard, and Other Label Overlap Measures To ITK, *Insight Journal* 2009, <http://hdl.handle.net/10380/3141>.

Tustison NJ, Gee JC: Introducing Dice, Jaccard, and Other Label Overlap Measures To ITK, *Insight Journal* 2009, <http://hdl.handle.net/10380/3141>.

Yushkevich PA, Tustison NJ, Gee JC: Gaussian Interpolation, *Insight Journal* 2009, <http://hdl.handle.net/10380/3139>.

Avants BB, Tustison NJ, Song G: Advanced Normalization Tools v1.0, *Insight Journal* 2009, <http://hdl.handle.net/10380/3113>.

Tustison NJ, Gee JC: N4ITK: Nick's N3 ITK Implementation for MRI Bias Field Correction, *Insight Journal* 2009, <http://hdl.handle.net/10380/3053>, Publication of the Month December 2009.

Tustison NJ, Gee JC: Stochastic Fractal Dimension Image, *Insight Journal* 2009, <http://hdl.handle.net/1926/1525> (*accepted into the Insight Toolkit*), Publication of the Month April 2009.

Tustison NJ, Awate SP, Gee JC: Information-Theoretic Directly Manipulated Free-Form Deformation Labeled Point-Set Registration, *Insight Journal* 2009, <http://hdl.handle.net/1926/1524>.

Tustison NJ, Yushkevich P, Gee JC: Live-Wire-ing the Insight Toolkit with Intelligent Scissors, *Insight Journal* 2008, <http://hdl.handle.net/1926/1372>.

Tustison NJ, Zhang H, Lehmann G, Yushkevich P, Gee JC: Meeting Andy Warhol Somewhere Over the Rainbow: RGB Colormapping and ITK, *Insight Journal* 2008, <http://hdl.handle.net/1926/1452> (*accepted into the Insight Toolkit*).

Tustison NJ, Gee JC: Image Kernel Convolution, *Insight Journal* 2008, <http://hdl.handle.net/1926/1323> (*accepted into the Insight Toolkit*).

Tustison NJ, Yushkevich P, Song Z, Gee JC: Graph Cuts, Caveat Utilitor, and Euler's Bridges of Königsberg, *Insight Journal* 2008, <http://hdl.handle.net/1926/1503>, Publication of the Month December 2008.



Tustison NJ, Gee JC, Run-Length Matrices For Texture Analysis, *Insight Journal* 2008, <http://hdl.handle.net/1926/1374>.

Tustison NJ, Awate SP, Gee JC: A Novel Information-Theoretic Point-Set Measure Based on the Jensen-Havrda-Charvat-Tsallis Divergence, *Insight Journal* 2008, <http://hdl.handle.net/1926/1497>.

Tustison NJ, Siqueira M, Gee JC: Well-Composedness and the Topological Repairing of 2-D and 3-D Digital Images, *Insight Journal* 2007, <http://hdl.handle.net/1926/470>.

Tustison NJ, Gee JC: Go-Go Gabor Gadgetry, *Insight Journal* 2007, <http://hdl.handle.net/1926/500> (*accepted into the Insight Toolkit*).

Tustison NJ, Avants BB, Gee JC: Gridding Graphic Graticules, *Insight Journal* 2007, <http://hdl.handle.net/1926/475> (*accepted into the Insight Toolkit*).

Tustison NJ, Siqueira M, Gee JC:  $N$ -D linear time exact signed Euclidean distance transform. *Insight Journal* 2006, <http://hdl.handle.net/1926/171> (*accepted into the Insight Toolkit*).

Tustison NJ, Gee JC:  $N$ -D  $C^k$  B-Spline Scattered Data Approximation, *Insight Journal* 2005, <http://hdl.handle.net/1926/140> (*accepted into the Insight Toolkit*).

- REFERENCES
- Dr. James C. Gee  
Associate Professor of Radiologic Science in Radiology  
Director: Penn Image Computing and Science Laboratory  
University of Pennsylvania  
T: (215) 662-7109  
[james.gee@uphs.upenn.edu](mailto:james.gee@uphs.upenn.edu)
- Dr. Amir A. Amini  
Professor and Endowed Chair in Bioimaging  
Director: Medical Image Computing Laboratory  
University of Louisville  
T: (502) 852-4767  
[amir.amini@louisville.edu](mailto:amir.amini@louisville.edu)
- Dr. James R. Brookeman  
Professor of Radiology of Biomedical Engineering  
University of Virginia  
T: (434) 243-4969  
[jrb5m@virginia.edu](mailto:jrb5m@virginia.edu)
- Dr. Talissa A. Altes  
Associate Professor of Radiology  
Section Head of Pediatric Radiology  
University of Virginia  
T: (434) 982-6018  
[taa2c@virginia.edu](mailto:taa2c@virginia.edu)