Nicholas J. Tustison

ntustison@virginia.edu

Education

- 2004: **D.Sc. Biomedical Engineering**, *Washington University in St. Louis*
- 2000: **M.S. Biomedical Engineering**, *University of Virginia*
- 1998: **B.S. Applied Physics: Computer Science**, *Brigham Young University*

Professional Appointments

- 2017-present: **Associate Professor**, *Department of Radiology and Medical Imaging*, University of Virginia.
- 2018-present: **Visiting Associate Researcher**, *Department of Neurobiology and Behavior*, University of California, Irvine.
- 2010-2017: **Assistant Professor**, *Departmet of Radiology and Medical Imaging*, University of Virginia.
- 2016-2018: **Visiting Assistant Researcher**, *Department of Neurobiology and Behavior*, University of California, Irvine.
- 2005-2010: **Senior Research Investigator**, *Department of Radiology*, University of Pennsylvania.
- 2004-2005: **Research Fellow**, *Department of Radiology*, University of Pennsylvania.

Major Publications

- **Nicholas J. Tustison**, Brian B. Avants, and James C. Gee. Learning image-based spatial transformations via convolutional neural networks: a review, *Magnetic Resonance Imaging*, 64:142-153, Dec 2019. (pubmed)

- **Nicholas J. Tustison**, Andrew J. Holbrook, Brian B. Avants, Jared M. Roberts, Philip A. Cook, Zachariah M. Reagh, Jeffrey T. Duda, James R. Stone, Daniel L. Gillen, and Michael A. Yassa for the Alzheimer's Disease Neuroimaging Initiative. Longitudinal mapping of cortical thickness measurements: an ADNI-based evaluation study, *Journal of Alzheimer's Disease*, 71(1):165-183, Sep 2019. (pubmed)

- **Nicholas J. Tustison**, Brian B. Avants, Zixuan Lin, Xue Feng, Nicholas Cullen, Jaime F. Mata, Lucia Flors, James C. Gee, Talissa A. Altes, John P. Mugler III, and Kun Qing. Convolutional Neural Networks with Template-Based Data Augmentation for Functional Lung Image Quantification, *Academic Radiology*, 26(3):412-423, Mar 2019. (pubmed)

- **Nicholas J. Tustison**, Philip A. Cook, Arno Klein, Gang Song, Sandhitsu R. Das, Jeffrey T. Duda, Benjamin M. Kandel, Niels van Strien, James R. Stone, James C. Gee, and Brian B. Avants. Large-Scale Evaluation of ANTs and FreeSurfer Cortical Thickness Measurements. *NeuroImage*, 99:166-179, Oct 2014. (pubmed)

- Brian B. Avants, **Nicholas J. Tustison**, Michael Stauffer, Gang Song, Baohua Wu, and James C. Gee. The Insight ToolKit Image Registration Framework. *Front Neuroinform*, 8:44. (pubmed)

- **Nicholas J Tustison**, Brian B Avants, Philip A Cook, Junghoon Kim, John Whyte, James C Gee, and James R Stone. Logical circularity in voxel-based analysis: Normalization strategy may induce statistical bias. *Hum Brain Mapp*, 35:745–759, Mar 2014. (pubmed)

- **Nicholas J. Tustison** and Brian B. Avants. Explicit B-spline regularization in diffeomorphic image registration. *Front Neuroinform*, 7:39, 2013. (pubmed)

- **Nicholas J Tustison**, Hans J Johnson, Torsten Rohlfing, Arno Klein, Satrajit S Ghosh, Luis Ibanez, and Brian B Avants. Instrumentation bias in the use and evaluation of scientific software: recommendations for reproducible practices in the computational sciences. *Front Neurosci*, 7:162, 2013. (pubmed)

- **Nicholas J Tustison**, Brian B Avants, Marcelo Siqueira, and James C Gee. Topological well-composedness and glamorous glue: a digital gluing algorithm for topologically constrained front propagation. *IEEE Trans Image Process*, 20(6):1756–61, Jun 2011. (pubmed)

- Brian B Avants, **Nicholas J Tustison**, Gang Song, Philip A Cook, Arno Klein, and James C Gee. A reproducible evaluation of ANTs similarity metric performance in brain image registration. *Neuroimage*, 54(3):2033–44, Feb 2011. (pubmed)

- **Nicholas J Tustison**, Brian B Avants, Philip A Cook, Yuanjie Zheng, Alexander Egan, Paul A Yushkevich, and James C Gee. N4ITK: improved N3 bias correction. *IEEE Trans Med Imaging*, 29(6):1310–20, Jun 2010. (pubmed)

- Full listing -- Pubmed My Bibliography

Software Contributions

- **Insight Toolkit (ITK):** Open-source, cross platform collection of image processing algorithms sponsored by the National Library of Medicine of the National Institutes of Health. Developer and contributor. Currently serving as a member of the governing Insight Software Consortium.

- **Advanced Normalization Tools (ANTs):** Software library for preprocessing, transformation, and statistical/visual exploration of biomedical images. Co-founder.

- **ANTsR:** R library which wraps the ANTs C++ package. Developer.

- **ANTsPy:** Python library which wraps the ANTs C++ package. Developer.

- **ANTsRNet:** Collection of deep learning architectures and applications ported to the R language and built upon Keras/TensorFlow. Extends ANTsR. Creator and developer.

- **ANTsPyNet:** Collection of deep learning architectures and applications ported to the Python language and built upon Keras/TensorFlow. Creator and developer.