Nicholas J. Tustison, DSc

Describe engagement with learners in your mission area of excellence (clinical, research, education, community).

I am a co-founder and developer of the widely recognized open-source Advanced Normalization Tools Ecosystem (ANTsX) which allows me to simultaneously engage with learners and contribute to ongoing research. This has led to significant opportunities for mentoring and teaching students, post-graduate trainees, and other researchers by providing numerous tutorials and workshops at various conferences and at different academic and scientific institutions. I have also organized this tutorial material for online public access. This is in addition to my daily participation in the ANTsX online user forums.

Give a brief self-evaluation regarding adherence to ASPIRE values. You should describe your contributions to at least one of the ASPIRE values (Accountability, Stewardship, Professionalism, Integrity, Respect, Equity).

My approach to research and collaboration is guided by a deep commitment to the development of high-quality, open-source computational strategies for biological and medical imaging. I believe that such commitments create a supportive and inclusive environment where knowledge is shared, diverse perspectives are valued, and the quality of work is held to the highest standards. Their importance has only increased since returning to the University of Virginia in 2010 as an Assistant Professor and subsequently during my current tenure as an Associate Professor.

Personal Statement

Throughout my academic career, I have benefited from caring mentors who have dmeonstrated excellent academic scholarship and integrity while promoting values of mutual respect. As an example, I continue to benefit immensely from relationships developed during my initial post-graduate years at the PICSL lab, particularly those at the University of Pennsylvania in the Penn Image and Computing Science Laboratory under the direction of Dr. James C. Gee. While at the University of Pennsylvania, my colleague, Dr. Brian B. Avants, and I co-founded the open-source Advanced Normalization Tools Ecosystem (ANTsX). This software suite has evolved to become one of the most widely used and highly cited libraries in the field in both academia and industry for image data processing and analysis. Recently, Dr. Gee and I have leveraged ANTs development in the successful application of two explicitly ANTs-based NIH R01 grants.

One of the benefits of being a part of a premier research university are the many opportunities for collaboration with internationally recognized scientists targeting a variety of clinical applications. As one of the leading institutions in the field of functional lung imaging using hyperpolarized gases, I have been part of a research team making important algorithmic contributions to the field which have been recently made available as a community resource at (www.xenonanalysis.com). Analagous quantitative contributions have been made in the field of traumatic brain injury with Dr. James Stone and Dr. Avants. My research and development has also resulted in an expansion of the circle of my collaborators beyond the University of Virginia to include collaborations with people at such academic entities and scientific institutions as the University of California, Irvine, the University of Pennsylvania, and the Allen Brain Institute.

In parallel with the appreciation I have for my many external opportunities for collaboration and mentoring, I am honored to be associated with the University of Virginia and feel extremely fortunate to work with its high quality faculty in exploring fascinating research questions. I look forward to continuing my academic career at UVa where I can best provide the necessary expertise for medical imaging data science.