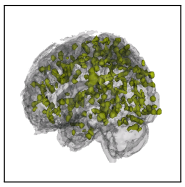

John Muschelli

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https://hopstat.wordpress.com/

Objective

To provide statistical and quantitative tools for analyzing human-related data sets.

Education

2012–Present **PhD Student**, *Johns Hopkins School of Public Health*, Baltimore, MD.
Area of Study: Stroke CT image segmentation, Post-selection statistical inference
Adviser: Professor Ciprian Crainiceanu

2008–2010 **ScM**, *Johns Hopkins School of Public Health*, Baltimore, MD.
Area of Study: fMRI brain image data analysis
Thesis Topic: *An Iterative Approach to Hemodynamic Response Function Temporal Derivatives in Statistical Parametric Mapping for Functional Neuroimaging*
Adviser: Professor Brian Caffo

2004–2008 **BS**, *The University of Scranton*, Scranton, PA, GPA: 3.87.
Majors: Biomathematics and Neuroscience
Summa Cum Laude
Advisers: Professor Jakub Jasinski, Professor J. Timothy Cannon

Professional Experience

2009–Present **Data Analyst / Data Manager**, *Brain Injury Outcomes Division*, Baltimore, MD.
Increased turnaround time on data safety report (from weeks to hours) by using knitr, LaTeX, and dynamic documents
Created a standardized database of CT images for analysis by developing a CT processing pipeline
Analyzed Phase II and III Clinical Trial for Treatment of Intracerebral and Intraventricular Hemorrhage
Data management and consultation of electronic case report form (eCRF) creation

2009–Present **Research Associate**, *Johns Hopkins Biostatistics Center (JHBC)*, Baltimore, MD.
Collaborated on statistical projects with senior consultants.
Report writing and analyzing data using statistical software: R, Stata

2010–Present **Data Analyst**, *Laboratory for Neurocognitive and Imaging Research at Kennedy Krieger Institute*, Baltimore, MD.
Reduced manual steps in complex imaging study analysis using automation from programming
Analysis of functional MRI (fMRI) imaging studies using Statistical Parametric Mapping (SPM)
Programming consultant: Matlab & R
Member of the winning team of the ADHD 200 Competition

2008 **Intern**, *Analysis & Inference*, Swarthmore, PA.
Cooperated on statistical projects and conferenced with clients about possible analysis options
Report writing of analyses: Stata
Data cleaning

2007 **Research Intern**, *Dupont Stine-Haskell Laboratory*, Wilmington, DE.
Developed lab skills and techniques: cell culturing, making and sterilizing broth media, optical density readings, inoculations, quality control, cell counts, screening for fungicidal properties of compounds

Publications

2015 **Muschelli, J.** Ullman, N. L. Mould, W. A. Vespa, P. Hanley, D. F. Crainiceanu, C. M. "Validated automatic brain extraction of head CT images". In: *NeuroImage* 114, pp. 379–385.

Muschelli, J. Sweeney, E. Lindquist, M. Crainiceanu, C. "fslr: Connecting the FSL Software with R". In: *R JOURNAL* 7.1, pp. 163–175.

2014 **Muschelli, J.** Nebel, M. B. Caffo, B. S. Barber, A. D. Pekar, J. J. Mostofsky, S. H. "Reduction of motion-related artifacts in resting state fMRI using aCompCor". In: *Neuroimage* 96, pp. 22–35.

Muschelli, J. Sweeney, E. Crainiceanu, C. "brainR: Interactive 3 and 4d Images of High Resolution Neuroimage Data". In: *R Journal* 6.1, pp. 41–48.

Muschelli, J. Betz, J. Varadhan, R. "Binomial Regression in R". In: *Handbook of Statistics: Computational Statistics with R* 32, p. 257.

2010 **Muschelli, J.** "An Iterative Approach to Hemodynamic Response Function Temporal Derivatives in Statistical Parametric Mapping for Functional Neuroimaging". PhD thesis. Johns Hopkins University.

2015 Mould, W. A. Lovett, B. L. **Muschelli, J.** Hanley, D. F. Carhuapoma, J. R. "Impact of Blood Removal on Perihematomal Apparent Diffusion Coefficients in Patients Treated with Minimally Invasive Surgery Plus rt-PA". In: *STROKE*. Vol. 46.

2014 Eloyan, A. Li, S. **Muschelli, J.** Pekar, J. J. Mostofsky, S. H. Caffo, B. S. "Analytic programming with fMRI data: A quick-start guide for statisticians using R". In: *PloS one* 9.2, e89470.

Nebel, M. B. Joel, S. E. **Muschelli, J.** Barber, A. D. Caffo, B. S. Pekar, J. J. Mostofsky, S. H. "Disruption of functional organization within the primary motor cortex in children with autism". In: *Human brain mapping* 35.2, pp. 567–580.

2013 Mould, W. A. Carhuapoma, J. R. **Muschelli, J.** Lane, K. Morgan, T. C. McBee, N. A. Bistran-Hall, A. J. Ullman, N. L. Vespa, P. Martin, N. A. others, "Minimally invasive surgery plus recombinant tissue-type plasminogen activator for intracerebral hemorrhage evacuation decreases perihematomal edema". In: *Stroke* 44.3, pp. 627–634.

Mould, W. A. Carhuapoma, J. R. **Muschelli, J.** Hanley, D. F. "Administration of Tissue Plasminogen Activator to Patients with Spontaneous ICH Does Not Lead to an Increase in Perihematomal Edema". In: *STROKE*. Vol. 44. 2.

Mould, W. Carhuapoma, J. **Muschelli, J**, Lane, K, Morgan, T. McBee, N. Bistran-Hall, A. Ullman, N. Vespa, P, Martin, N. others, "MISTIE Investigators: minimally invasive surgery plus recombinant tissue-type plasminogen activator for intracerebral hemorrhage evacuation decreases perihematomal edema". In: *Stroke* 44.3, pp. 627–634.

Ullman, N. L. **Muschelli, J.** Li, M. Morgan, T. C. Awad, I. A. Zuccarello, M. Lane, K. Hanley, D. F. "Catheter Placement and Surgical Training in the Minimally Invasive Surgery Plus rt-PA for Intracerebral Hemorrhage Evacuation Trial". In: *STROKE*. Vol. 44. 2.

2012 Bundy, D. G. **Muschelli, J.** Clemens, G. D. Strouse, J. J. Thompson, R. E. Casella, J. F. Miller, M. R. "Ambulatory Care Connections of Medicaid-Insured Children With Sickle Cell Disease". In: *Pediatric Blood & Cancer*.

Eloyan, A. **Muschelli, J.** Nebel, M. B. Liu, H. Han, F. Zhao, T. Barber, A. D. Joel, S. Pekar, J. J. Mostofsky, S. H. others, "Automated diagnoses of attention deficit hyperactive disorder using magnetic resonance imaging". In: *Frontiers in systems neuroscience* 6.

Hanley, D. F. Zuccarello, M, Lane, K, Broaddus, W. Awad, I, Aldrich, E. Wijman, C, Vespa, P, Caron, J. Huang, J, others, "MISTIE phase II results: safety, efficacy and surgical performance". In: *CEREBROVASCULAR DISEASES*. Vol. 34, pp. 4–4.

Hinson, H. E. Melnychuk, E. **Muschelli, J.** Hanley, D. F. Awad, I. A. Ziai, W. C. "Drainage efficiency with dual versus single catheters in severe intraventricular hemorrhage". In: *Neurocritical care* 16.3, pp. 399–405.

Jaffe, J. Melnychuk, E. **Muschelli, J.** Ziai, W. Morgan, T. Hanley, D. F. Awad, I. A. "Ventricular catheter location and the clearance of intraventricular hemorrhage". In: *Neurosurgery* 70.5, p. 1258.

Webb, A. J. Ullman, N. L. Mann, S. **Muschelli, J.** Awad, I. A. Hanley, D. F. "Resolution of Intraventricular Hemorrhage Varies by Ventricular Region and Dose of Intraventricular Thrombolytic The Clot Lysis: Evaluating Accelerated Resolution of IVH (CLEAR IVH) Program". In: *Stroke* 43.6, pp. 1666–1668.

Ziai, W. C. **Muschelli, J.** Thompson, C. B. Keyl, P. M. Lane, K. Shao, S. Hanley, D. F. "Factors affecting clot lysis rates in patients with spontaneous intraventricular hemorrhage". In: *Stroke* 43.5, pp. 1234–1239.

2011 Newell, D. W. Shah, M. M. Wilcox, R. Hansmann, D. R. Melnychuk, E. **Muschelli, J.** Hanley, D. F. "Minimally invasive evacuation of spontaneous intracerebral hemorrhage using sonothrombolysis". In: *Journal of neurosurgery* 115.3, p. 592.

Niedner, M. F. Huskins, W. C. Colantuoni, E. **Muschelli, J.** Harris, J. M. Rice, T. B. Brilli, R. J. Miller, M. R. "Epidemiology of central line-associated bloodstream infections in the pediatric intensive care unit". In: *Infection Control* 32.12, pp. 1200–1208.

2010 Hinson, H. E. Melnychuk, E. **Muschelli, J.** Hanley, D. F. Ziai, W. C. "Dual Intraventricular Catheter Use in Severe Intraventricular Hemorrhage". In: *NEUROLOGY*. Vol. 74. 9, A129–A129.

Talks and Presentations

2014 **Validated Automatic Brain Extraction of Head CT Images**, *Hopkins Imaging Conference* , Talk and Poster, Award: Top Poster.

2013 **Visualizing Brain Imaging in Interactive 3D**, *ENAR*, Talk.

2014 **Reduction of motion-related artifacts in resting state fMRI using aCompCor**, *Hopkins Imaging Conference*, Poster, Award: Top Poster.

Software

R Package **fslr: Wrapper functions for FSL (FMRIB Software Library) from Functional MRI of the Brain (FMRIB)**.

R Package **WhiteStripe: Whitestripe White Matter Normalization for Magnetic Resonance Images**.

R Package **brainR: Helper functions to misc3d and rgl packages for brain imaging**.

R Package **drammsr: Port of Deformable Registration via Attribute Matching and Mutual-Saliency Weighting (DRAMMS) Registration to R**.

R Package **extrantsr: Additional functionality and extensions to the ANTsR R package**.

R Package **dcm2niir: R wrapper for dcm2nii DICOM converter**.

R Package **matlabr: R interface with calling MATLAB code without a server**.

R Package **spm12r: R interface with calling SPM12 MATLAB processing**.

R Package **googleCite: Scraper for Google Citations**.

R Package **processVISION: Scripts for Parsing XML from VISION database**.

Computer skills

Scripting Proficient: R, Stata, Matlab, Beginner: SAS, Python

Markup TEX, LATEX, BIBTEX, TeXShop, WinEdt, knitr, HTML

Programming C++, Visual Basic

Honors and Awards

2007–2008 **Presidential Scholar (Full Tuition Scholarship)**.

2004–2008 **Dean's List**.

2004 **Alpha Lambda Delta**.

2008 **Alpha Sigma Nu**.

Academic Service

2013–Present **Mentor, Grand Parent**, *Incentive Mentoring Program/Thread*.
Manage a team of mentors with weekly meetings and e-mails to provide large-scale mentorship for students.

2010–2013 **Mentor, Head of Household**, *Incentive Mentoring Program/Thread*.
Mentored and tutored a student from Dunbar High School, teaching coursework, life skills, support as needed.