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**EDUCATION**

***University of Southern California*** Neuroscience Graduate Program

Ph.D. Candidate in Neuroscience

Expected May 2020

***University of Southern California*** College of Letters, Arts & Sciences  
 Neuroscience BA, Natural Science Minor  
 Class of 2010

***Los Angeles Center for Enriched Studies*** Class of 2006  
 Valedictorian

**NEUROIMAGING RESEARCH EXPERIENCE 2007 - Present**

***Clinical Research Assistant* Summer 2014 – Present**Heart Institute, Children’s Hospital Los Angeles

* Studying the effects of Sickle Cell Disease in the brain using multimodal MR imaging, neurocognitive testing, and phlebotomy laboratory factors. Current thesis project.

***Research Assistant* Summer 2014 – Present**

Biomedial Imaging Group, SIPI, USC.

* Development of brain image analysis methods in registration, segmentation, diffusion image processing, and post-processing analysis.

***Research Assistant* Spring 2010 – Summer 2014**

Dornsife Neuroimaging Center, USC

* Studied the secondary effects of anterior temporal lesions in the frontal lobe using T1 and DWI.
* Studied neurodevelopmental outcomes of premature birth in preadolescents using T1, DWI, and MRS.
* Development and testing of MR image analysis tool, [BrainSuite](brainsuite.org).
* Development of the [BCI-DNI brain atlas,](http://brainsuite.org/svreg_atlas_description/) a high-resolution anatomical brain atlas with 95 ROI’s and 76 sulci, used for registration and segmentation.

***Researcher****,* **Spring 2011 – Summer 2014**

Children’s Hospital Los Angeles

* Studied prematurity and traumatic brain injury using MRS. Collaboration with USC Dornsife and Children’s Hospital of Pittsburg of UPMC.

***Research Volunteer,* Summer 2007 – Fall 2007**

Maxine Dunitz Neurosurgical Institute, Cedars Sinai Medical Center

* Development of nanoparticles and docking abilities of inorganic molecules to neuroreceptors.
* Ran samples through nuclear magnetic resonance (NMR) spectroscopy, scanning electron microscope (SEM) imaging.

**PUBLICATIONS**

1. [*Predictors of Cerebral Blood Flow in Patients With and Without Anemia*](http://www.ncbi.nlm.nih.gov/pubmed/26796758)MT Borzage, AM Bush, S Choi, AJ Nederveen, L Václavů, TD Coates, and JC Wood  
   Journal of Applied Physiology, 2016, doi:10.1152/japplphysiol.00994.2015
2. [*Co-registration and distortion correction of diffusion and anatomical images based on inverse contrast normalization*](http://www.sciencedirect.com/science/article/pii/S1053811915002451)

C Bhushan, JP Haldar, **S Choi**, AA Joshi, DW Shattuck, RM Leahy

Neuroimage, 2015, doi:10.1016/j.neuroimage.2015.03.050

1. [*Altered Structural and Functional Connectivity in Late Preterm Preadolescence: An Anatomic Seed-Based Study of Resting State Networks Related to the Posteromedial Lateral Parietal Cortex*](http://www.ncbi.nlm.nih.gov/pubmed/26098888)

AJ Degnan, JL Wisnowski, **S Choi**, R Ceschin, C Bhushan, RM Leahy, P Corby, VJ Schmithorst, A Panigrahy

PLoS One, 2015, doi:10.1371/journal.pone.0130686

1. [*Reduced thalamic volume in preterm infants is associated with abnormal white matter metabolism independent of injury*](http://www.ncbi.nlm.nih.gov/pubmed/25666231)  
   JL Wisnowski, RC Ceschin, S Choi, VJ Schmithorst, MJ Painter, MD Nelson, S Bluml, and A Panigrahy  
   Brain, 2013, doi:10.1007/s00234-015-1495-7
2. [*Alterations of resting state networks and structural connectivity in relation to the prefrontal and anterior cingulate cortex in late prematurity*](http://www.ncbi.nlm.nih.gov/pubmed/25426826/)AJ Degnan, JL Wisnowski, **S Choi**, R Ceschin, C Bhushan, RM Leahy, P Corby, VJ Schmithorst, A Panigrahy

Neuroreport, 2014, doi:10.1097/WNR.0000000000000296

1. [*An Equal Start: Absence of Group Differences in Cognitive, Social and Neural Measures Prior to Music or Sports Training in Children*](http://journal.frontiersin.org/Journal/10.3389/fnhum.2014.00690/abstract)A Habibi, B Ilari, K Crimi, M Metke, J Kaplan, A Joshi, R Leahy, D Shattuck, **S Choi**, B Ficek, J Haldar, A Damasio, H Damasio  
   Front. Hum. Neurosci., 2014, doi: 10.3389/fnhum.2014.00690

**CONFERENCES/ABSTRACTS**

1. [*Tract specific analysis in patients with sickle cell disease*](http://proceedings.spiedigitallibrary.org/proceeding.aspx?articleid=2479313)Y Chai, J Coloigner, Xiaoping Qu, S Choi, AM Bush, M Borzage, C Vu, N Lepore, JC Wood

11th International Symposium on Medical Information Processing and Analysis (SIPAIM), International Society for Optics and Photonics, 2015, 968108, doi:10.1117/12.2213617

1. [*Diffuse T1-MRI White Matter Volume Decrease in Patients with Sickle Cell Disease*](https://ww4.aievolution.com/hbm1501/index.cfm?do=abs.viewAbs&abs=1967)S Choi, AM Bush, M Borzage, A Joshi, J Coloigner, V Rajagopalan, N Lepore, T Coates, JC Wood21th Annual Meeting of the Organization for Human Brain Mapping (OHBM), Honolulu, 2015, 3364
2. [*Elevated Cerebral Blood Oxygen Extraction in Non-Transfused Sickle Cell Disease Patients*](https://ash.confex.com/ash/2014/webprogram/Paper75278.html)AM Bush, M Borzage, **S Choi**, T Coates, JC Wood  
   56th American Society of Hematology Annual Meeting and Exposition (ASH), San Francisco, 2014, 1387
3. [*Elevated Cerebral Metabolic Oxygen Consumption in Sickle Cell Disease*](https://ash.confex.com/ash/2014/webprogram/Paper75049.html)AM Bush, M Borzage, **S Choi**, T Coates, JC Wood  
   56th American Society of Hematology Annual Meeting and Exposition (ASH), San Francisco, 2014, 2706
4. [*Cerebral Blood Flow and Metabolic Correlates of Near Infrared Spectroscopy in Patients with Sickle Cell Disease*](https://ash.confex.com/ash/2014/webprogram/Paper75166.html)AM Bush, M Borzage, **S Choi**, T Coates, JC Wood  
   56th American Society of Hematology Annual Meeting and Exposition (ASH), San Francisco, 2014, 1386
5. [*Altered Glutamatergic Fronto-Limbic Network Connectivity in Late Preterm Preadolescents*](http://choisoyo.github.io/Panigrahy_PAS_2185.7.pdf)

A Panigrahy, JL Wisnowski, **S Choi**, R Ceschin, N Dosenbach, S Bluml, VJ Schmithorst

Pediatric Academic Societies and Asian Society for Pediatric Research Joint Meeting (PAS/ASPR), Vancouver, 2014, 2185.7

1. [*Gingival Inflammation Is Associated With Altered Tissue Microstructure in Frontolimbic Regions and Memory Performance in Otherwise Healthy Preadolescents*](http://choisoyo.github.io/Wisnowski_PAS_3814.262.pdf)

JL Wisnowski, VJ Schmithorst, **S Choi**, RC Ceschin, S Bluml, P Corby, A Panigrahy

Pediatric Academic Societies and Asian Society for Pediatric Research Joint Meeting (PAS/ASPR), Vancouver, 2014, 3814.262

1. [*A Multimodal Investigation of Neuronal/Axonal Integrity Using Structural T1-weighted Imaging, Diffusion Tensor Imaging, and H1 MR Spectroscopy*](http://www-scf.usc.edu/~cbhushan/files/ismrm_2013_multimodalanalysis.pdf)

**S Choi**, AA Joshi, C Bhushan, DW Shattuck, RM Leahy, H Damasio, A Panigrahy and JL Wisnowski   
21st Scientific Meeting of International Society for Magnetic Resonance in Medicine (ISMRM), Salt Lake City, 2013, p. 1951

1. [*Tools for Brain Image Segmentation, Registration, and Connectivity Analysis*](http://www-scf.usc.edu/~cbhushan/files/shattuck_ismrm13_poster2691_brainsuite.pdf)

DW Shattuck, AA Joshi, JP Haldar, C Bhushan, **S Choi**, AC Krause, JL Wisnowski, AW Toga and RM Leahy   
21st Scientific Meeting of International Society for Magnetic Resonance in Medicine (ISMRM), Salt Lake City, 2013, p. 2691

1. [*Altered orbitofrontal tissue microstructure in patients with chronic anterior temporal lobe lesions*](http://ww4.aievolution.com/hbm1301/index.cfm?do=abs.viewAbs&abs=1726)

**S Choi**, C Bhushan, AA Joshi, K Raphel, D Tranel, DW Shattuck, JP Haldar, RM Leahy, H Damasio, JL Wisnowski   
19th Annual Meeting of the Organization for Human Brain Mapping (OHBM), Seattle, 2013, p. 3781

1. [*New BrainSuite13 Tools for Image Segmentation, Registration, Connectivity Analysis and Visualization*](http://ww4.aievolution.com/hbm1301/index.cfm?do=abs.viewAbs&abs=1986)

DW Shattuck, AA Joshi, JP Haldar, C Bhushan, **S Choi**, AC Krause, JL Wisnowski, H Damasio, AW Toga, RM Leahy   
19th Annual Meeting of the Organization for Human Brain Mapping (OHBM), Seattle, 2013, p. 1688

**POSTER PRESENTATIONS**

1. [*Diffuse T1-MRI White Matter Volume Decrease in Patients with Sickle Cell Disease*](https://ww4.aievolution.com/hbm1501/index.cfm?do=abs.viewAbs&abs=1967)S Choi, AM Bush, M Borzage, A Joshi, J Coloigner, V Rajagopalan, N Lepore, T Coates, JC Wood21th Annual Meeting of the Organization for Human Brain Mapping (OHBM), Honolulu, 2015, 3364
2. [*A Multimodal Investigation of Neuronal/Axonal Integrity Using Structural T1-weighted Imaging, Diffusion Tensor Imaging, and H1 MR Spectroscopy*](http://www-scf.usc.edu/~cbhushan/files/ismrm_2013_multimodalanalysis.pdf)

**S Choi**, AA Joshi, C Bhushan, DW Shattuck, RM Leahy, H Damasio, A Panigrahy and JL Wisnowski   
21st Scientific Meeting of International Society for Magnetic Resonance in Medicine (ISMRM), Salt Lake City, 2013, p. 1951

1. [*Altered orbitofrontal tissue microstructure in patients with chronic anterior temporal lobe lesions*](http://ww4.aievolution.com/hbm1301/index.cfm?do=abs.viewAbs&abs=1726)

**S Choi**, C Bhushan, AA Joshi, K Raphel, D Tranel, DW Shattuck, JP Haldar, RM Leahy, H Damasio, JL Wisnowski   
19th Annual Meeting of the Organization for Human Brain Mapping (OHBM), Seattle, 2013, p. 3781

**SKILLS**

Platforms: Windows, Mac, Unix/Linux  
Programming: MATLAB, shellscript  
Imaging Software: BrainSuite, FSL, 3D Slicer, Trackvis, MRIcron

**REFERENCES**

***John C. Wood, M.D., Ph.D.***

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University of Southern California,

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