

# Stanford

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## Danielle DeSouza

Instructor, Neurology & Neurological Sciences

### Bio

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#### BIO

My research focuses on the use of neuroimaging methods to understand brain structure and function and treatment-related plasticity in individuals with chronic pain. Current projects focus on basic mechanisms and biomarkers underlying chronic headache subtypes using multimodal brain imaging and deep phenotyping and repetitive transcranial magnetic stimulation to augment pain and hypnotizability. Additionally, I am interested in understanding the central mechanisms of chronic pain associated with Lyme disease.

Teaching roles include Co-Director for the Neuroscience, Behavior, and Cognition (NBC) Scholarly Concentration, part of a required structured program of study in the medical student curriculum that promotes in depth learning and scholarship, and Instructor for ANES 215, a required course in the Department of Anesthesia for medical students enrolled in the NBC Scholarly Concentration.

#### ACADEMIC APPOINTMENTS

- Instructor, Neurology & Neurological Sciences

#### PROFESSIONAL EDUCATION

- Doctor of Philosophy, University of Toronto (2015)
- Master of Science, University of Toronto (2009)
- Bachelor of Science, University of Toronto (2006)

### Research & Scholarship

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#### PROJECTS

- Functional MRI and sensory evaluation of central mechanisms of chronic pain associated with Lyme disease - Stanford University
- Investigating the role of GABA and glutamate on anterior cingulate activity associated with hypnosis - Stanford University (1/2017 - 8/2018)

### Publications

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#### PUBLICATIONS

- **Obesity-Related Cortical Thickness Changes in Chronic Migraine**  
Woldeamanuel, Y. W., DeSouza, D. D., Sanjanwala, B. M., Cowan, R. P.  
WILEY.2018: S83
- **High-Dose Spaced Theta-Burst Transcranial Magnetic Stimulation as a Rapid-Acting Anti-Depressant in Highly Refractory Depression**  
Williams, N., Sudheimer, K., Bentzley, B., Pannu, J., Stimpson, K., Duvio, D., Cherian, K., Hawkins, J., Scherrer, K., Vyssoki, B., DeSouza, D., Raj, K., Keller, et al

ELSEVIER SCIENCE INC.2018: S191

- **High-Dose Theta-Burst Transcranial Magnetic Stimulation Modulates Heart Rate Variability**  
Pannu, J., Kallioniemi, E., Gulser, M., Stimpson, K., DeSouza, D., Sudheimer, K., Williams, N.  
ELSEVIER SCIENCE INC.2018: S189
- **High-dose spaced theta-burst TMS as a rapid-acting antidepressant in highly refractory depression.** *Brain : a journal of neurology*  
Williams, N. R., Sudheimer, K. D., Bentzley, B. S., Pannu, J., Stimpson, K. H., Duvio, D., Cherian, K., Hawkins, J., Scherrer, K. H., Vyssoki, B., DeSouza, D., Raj, K. S., Keller, et al  
2018
- **Clinical Features Contributing to Cortical Thickness Changes in Chronic Migraine - A Pilot Study.** *Headache*  
Woldeamanuel, Y. W., DeSouza, D. D., Sanjanwala, B. M., Cowan, R. P.  
2018
- **Modulation of the Neural Circuitry Underlying Trait Hypnotizability With Spaced Continuous Theta-Burst Stimulation**  
Williams, N., Sudheimer, K., Stimpson, K., Duvio, D., Chung, C., DeSouza, D., Jo, B., Williams, L., Yeomans, D., Spiegel, D.  
NATURE PUBLISHING GROUP.2017: S508-S509
- **Comparison of Diffusion-Weighted MRI Reconstruction Methods for Visualization of Cranial Nerves in Posterior Fossa Surgery.** *Frontiers in neuroscience*  
Behan, B., Chen, D. Q., Sammartino, F., DeSouza, D. D., Wharton-Shukster, E., Hodaie, M.  
2017; 11: 554
- **Structural Magnetic Resonance Imaging Can Identify Trigeminal System Abnormalities in Classical Trigeminal Neuralgia** *FRONTIERS IN NEUROANATOMY*  
DeSouza, D. D., Hodaie, M., Davis, K. D.  
2016; 10
- **Journal Club: Exacerbation of headache during dihydroergotamine for chronic migraine does not alter outcome.** *Neurology*  
Woldeamanuel, Y. W., O'Hare, M., DeSouza, D. D., Cowan, R. P.  
2016; 87 (16): e196-e198
- **Journal Club: Change in brain network connectivity during PACAP38-induced migraine attacks.** *Neurology*  
DeSouza, D. D., O'Hare, M., Woldeamanuel, Y. W., Cowan, R. P.  
2016; 87 (16): e199-e202
- **Reversal of insular and microstructural nerve abnormalities following effective surgical treatment for trigeminal neuralgia.** *Pain*  
DeSouza, D. D., Davis, K. D., Hodaie, M.  
2015; 156 (6): 1112-23
- **Individual Differences in Temporal Summation of Pain Reflect Pronociceptive and Antinociceptive Brain Structure and Function.** *The Journal of neuroscience : the official journal of the Society for Neuroscience*  
Cheng, J. C., Erpelding, N., Kucyi, A., DeSouza, D. D., Davis, K. D.  
2015; 35 (26): 9689-9700
- **Diffusivity signatures characterize trigeminal neuralgia associated with multiple sclerosis.** *Multiple sclerosis (Houndmills, Basingstoke, England)*  
Chen, D. Q., DeSouza, D. D., Hayes, D. J., Davis, K. D., O'Connor, P., Hodaie, M.  
2015
- **Discriminating neural representations of physical and social pains: how multivariate statistics challenge the 'shared representation' theory of pain.** *Journal of neurophysiology*  
Rogachov, A., Cheng, J. C., DeSouza, D. D.  
2015; jn.00075.2015
- **Diffusion imaging in trigeminal neuralgia reveals abnormal trigeminal nerve and brain white matter.** *Pain*  
DeSouza, D. D., Hodaie, M., Davis, K. D.  
2014; 155 (9): 1905-1906
- **Abnormal trigeminal nerve microstructure and brain white matter in idiopathic trigeminal neuralgia.** *Pain*  
DeSouza, D. D., Hodaie, M., Davis, K. D.  
2014; 155 (1): 37-44

- **Sensorimotor and Pain Modulation Brain Abnormalities in Trigeminal Neuralgia: A Paroxysmal, Sensory-Triggered Neuropathic Pain.** *PloS one*  
Desouza, D. D., Moayedi, M., Chen, D. Q., Davis, K. D., Hodaie, M.  
2013; 8 (6): e66340
- **Making Sense of Gray Matter Abnormalities in Chronic Orofacial Pain-Synthesizing Divergent Findings** *JOURNAL OF NEUROSCIENCE*  
Moayedi, M., DeSouza, D., Erpelding, N.  
2011; 31 (35): 12396-12397
- **Use of Diffusion Tensor Imaging to Examine Subacute White Matter Injury Progression in Moderate to Severe Traumatic Brain Injury** *ARCHIVES OF PHYSICAL MEDICINE AND REHABILITATION*  
Greenberg, G., Mikulis, D. J., Ng, K., DeSouza, D., Green, R. E.  
2008; 89 (12): S45-S50