

# DANIEL CHENG MOYER

Updated August 26, 2019  
Cambridge, MA  
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## RESEARCH INTERESTS

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Machine Learning, Neuroimaging, Representation Learning, Human Brain Networks (Connectomics)

## EDUCATION AND TRAINING

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**University of Southern California** *August 2019*

Ph.D. in Computer Science

*Advisors: Greg Ver Steeg and Paul Thompson*

*Dissertation Title: Representation Problems in Brain Imaging*

**University of California, Los Angeles** *June 2014*

B.S. in Mathematics of Computation, Minor in Statistics

*Department and Latin Honors*

## RESEARCH EXPERIENCE

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**Massachusetts Institute of Technology**

*Post-Doc*

Starting September 2019

*Cambridge, MA*

- Brain Imaging Methods

**Stevens Neuroimaging and Informatics Institute**

*Graduate Research Assistant*

March 2015 - August 2019

*Los Angeles, CA*

- Continuous Connectivity: [8] and [10-14]
- Blockmodels for Connectome Analysis: [16,17]
- Other projects: [7,9]

**Information Sciences Institute**

*(Visiting) Graduate Research Assistant*

March 2015 - August 2019

*Marina del Rey, CA*

- Invariant Representations [4]

**OpenMail**

*Intern (Data Science)*

Summer 2016

*Venice, CA*

- CTR analysis and CTR optimization system design, keyword analysis and generation.

**Center for the Study of Choice**

*Independent Contractor, ARC Project ID: LP0990750*

January 2013 - June 2015

*Sydney, New South Wales, Australia*

- Data collection/warehousing, topic models for analysis of forum content. Related Paper: [19]

**UCLA REU/Guided Research**

*Undergraduate Researcher*

June 2012 - August 2013, and Summer 2014

*Los Angeles, CA*

- Related Paper [15] and Presentations [25,26].

**Cohen Lab, Semel Institute, UCLA**

*Undergraduate Researcher*

August 2011 - June 2013

*Los Angeles, CA*

- Related Paper [20] and Presentations [27-30].

## AWARDS, SERVICE, AND TECHNICAL ABILITIES

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**Computer Languages** C/C++, Python (NumPy/SciPy/Pandas), Matlab, R  
**Databases** MySQL, PostgreSQL

### Service:

Reviewer for IEEE International Symposium on Biomedical Imaging  
Reviewer for [the Journal of ] Scientific Reports  
Reviewer for the Journal of Alzheimer's Disease  
Reviewer for IEEE Transactions on Image Processing  
Reviewer for Human Brain Mapping  
Reviewer for Neuroimage  
Session Chair for SIPAIM 2015 (Imaging: Connectomics)

### Awards:

USC CSCI Dept. Symposium Best Poster Fall 2019  
MICCAI-CDMRI '18 Best Oral Presentation Fall 2018  
MICCAI Young Scientist Award Fall 2016

### Awards:

NSF Graduate Research Fellowship Program (NSF GRFP) Fall 2016–Present  
NSF GRFP Honorable Mention Spring 2015  
Viterbi Graduate Fellowship Fall 2014–Spring 2016  
Dean's Honors List Fall '10, Winter & Spring '11, Winter & Spring '12

### Teaching Experience:

Teaching Assistant, USC CSCI 103, Spring 2016  
Lab Assistant (Teaching Role), UCLA PIC Lab Fall 2012–Spring 2014

### Invited Talks:

MIT-CSAIL (Biomedical Imaging and Analysis Seminar) March '17

## PRE-PRINTS

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- [1] Scanner Invariant Representations for Diffusion MRI Harmonization *Efficient Covariance Estimation from Temporal Data* Pre-print, <https://arxiv.org/abs/1904.05375>
- [2] Hrayr Harutyunyan, Daniel Moyer, Hrant Khachatrian, Greg Ver Steeg, Aram Galstyan *Efficient Covariance Estimation from Temporal Data* Pre-print, <https://arxiv.org/abs/1905.13276>
- [3] Rob Brekelmans, Daniel Moyer, Aram Galstyan, Greg Ver Steeg *Exact Rate-Distortion in Autoencoders via Echo Noise* Pre-print, <https://arxiv.org/abs/1904.07199>

## PUBLICATIONS

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- [4] Daniel Moyer, Shuyang Gao, Rob Brekelmans, Greg Ver Steeg, and Aram Galstyan, *Invariant Representation without Adversarial Training*, Neural Information Processing Systems (NIPS) 2018.
- [5] Fabrizio Pizzagalli, Guillaume Auzias, Armand Amini, Joshua Faskowitz, Faisal Rashid, Daniel Moyer, Peter Kochunov, Denis Riviere, Jean-Francois Mangin, Paul M Thompson, Neda Jahanshad, *Sulcal-based morphometry in Parkinsons disease: a study of reliability and disease effects*, SIPAIM, 2018.
- [6] Fabian W Corlier, Daniel Moyer, Meredith N Braskie, Paul M Thompson, Guillaume Dorothee, Marie Claude Potier, Marie Sarazin, Michel Bottlaender, Julien Lagarde, *Automatic classification of cortical thickness patterns in Alzheimers disease patients using the Louvain modularity clustering method*, SIPAIM, 2018.

- [7] Daniel Moyer, Paul M. Thompson, and Greg Ver Steeg, *Measures of Tractography Convergence*, MICCAI-CDMRI, 2018.
- [8] Daniel Moyer, Boris Gutman, Neda Jahanshad, Joshua Faskowitz, Paul M. Thompson, *Continuous Representations of Brain Connectivity using Spatial Point Processes*, Medical Image Analysis (MedIA) 2017.
- [9] Dmitry Petrov, Alexander Ivanov, Joshua Faskowitz, Boris Gutman, Daniel Moyer, Julio Villalon, Neda Jahanshad, Paul M. Thompson *Evaluating 36 Methods to Generate Structural Connectomes Using Pairwise Classification*, MICCAI, September 2017.
- [10] Daniel Moyer, Boris Gutman, Neda Jahanshad, and Paul M. Thompson, *Product Space Decompositions for Continuous Representations of Brain Connectivity*, MICCAI-MLMI, September 2017.
- [11] Daniel Moyer, Boris Gutman, Neda Jahanshad, and Paul M. Thompson, *A Restaurant Process Mixture Model for Connectivity Based Parcellation of the Cortex*, IPMI, June 2017.
- [12] Dmitry Isaef, Boris Gutman, Daniel Moyer, Joshua Faskowitz, and Paul M. Thompson, *Cortical Connectome Registration Using Spherical Daemons*, SIPAIM, November 2017 (Oral Presentation).
- [13] Daniel Moyer, Boris Gutman, Neda Jahanshad, Joshua Faskowitz, and Paul M. Thompson, *A Continuous Model of Cortical Connectivity*, MICCAI, October 2016 (Oral Presentation, Student Travel Award, Young Scientist Award).
- [14] Daniel Moyer, Boris Gutman, Neda Jahanshad, Joshua Faskowitz, and Paul M. Thompson, *An Empirical Study of Continuous Connectivity Degree Sequence Equivalents*, MICCAI-BACON, October 2016 (Oral Presentation).
- [15] Eric Le Lai, Daniel Moyer, Baichuan Yuan, Eric Fox, Blake Hunter, Andrea L. Bertozzi, Jeffery Brantingham, *Topic Time Series Analysis of Microblogs*, IMA Journal of Applied Math (2016) 81 (3): 409-431.
- [16] Daniel Moyer, Boris Gutman, Gautam Prasad, Joshua Faskowitz, Greg Ver Steeg, and Paul M. Thompson, *Blockmodels for Connectome Analysis* SIPAIM, July 2015
- [17] Daniel Moyer, Boris Gutman, Gautam Prasad, Greg ver Steeg, and Paul M. Thompson, *Mixed Membership Stochastic Blockmodels for the Human Connectome*, MICCAI-BAMBI Workshop, 2015.
- [18] Talia M. Nir, Julio E. Villalon, Boris Gutman, Daniel Moyer, Neda Jahanshad, Clifford R. Jack Jr, Michael Weiner, Paul M. Thompson, *Alzheimer's Disease Classification with Novel Microstructural Metrics from Diffusion-Weighted MRI*, MICCAI-CDMRI Workshop, October 2015
- [19] Daniel Moyer, Thayne Dye, Samuel L. Carson, Richard T. Carson, and David Goldbaum, *Determining the Influence of Reddit Posts on Wikipedia Pageviews*, ICWSM Workshop on Wikipedia, 2015.
- [20] Pamela Douglas, Edward Lau, Ariana Anderson, Wesley Kerr, Austin Head, Margalit Aliza Wollner, Daniel Moyer, Michael Durnhofer, Wei Li, Jen Bramen, and Mark S. Cohen, *Single Trial Decoding of Belief Decision Making from EEG and fMRI Data Using ICA Features*, Frontiers in Human Neuroscience, 2013, 7:392. PMID: 23914164

## CONFERENCE ABSTRACTS

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- [21] Lipeng Ning, Elisenda Bonet-Carne, Francesco Grussu, Farshid Sepehrband, Enrico Kaden, ..., Daniel Moyer, ..., Derek K Jones, Chantal WM Tax, *Cross-scanner and cross-protocol harmonisation of multi-shell diffusion MRI data: open challenge and evaluation results*, ISMRM 2019.
- [22] Daniel Moyer, Paul M. Thompson, and Greg Ver Steeg, *Measures of Tractography Convergence*, OHBM 2018.

- [23] Daniel Moyer, Boris Gutman, Neda Jahanshad, and Paul M. Thompson, *A Restaurant Process Mixture Model for Connectivity Based Parcellation of the Cortex*; OHBM 2017.
- [24] Daniel Moyer, Boris Gutman, Neda Jahanshad, and Paul Thompson, *Cluster Weighted Regressions for Connectome Analysis*; OHBM, 2016
- [25] Daniel Moyer, Douglas de Jesus, and Lingge Li, *Evolutionary Agent-Based Models for Contagion*; Pacific Coast Undergraduate Mathematics Conference, Los Angeles 2014 (Oral Presentation)
- [26] Douglas de Jesus, Lingge Li, and Daniel Moyer, *Metaheuristics Using Agent-Based Models for Swarm and Contagion*; Joint Math Meeting, Baltimore 2014
- [27] Douglas P.K., Moyer D., Cohen M.S., *EEG-fMRI Coupling is Task Related and Spectrally Dependent*; SfN 2013 (Oral Presentation)
- [28] Douglas P.K., Moyer D., Cohen M.S., *Co-localizing EEG and fMRI in the Spatial Domain*; OHBM, 19th Annual Meeting, Seattle, Washington 2013 (Oral Presentation)
- [29] Pamela Douglas & Daniel Moyer, *Temporal Kernel Canonical Correlation Analysis: Deconvolving EEG/fMRI Signals in Space and Time*; OHBM, Beijing 2012
- [30] Pamela Douglas, Daniel Moyer, and Mark S. Cohen, *Co-localizing EEG and fMRI in Space*; SfN, 2012