

## Curriculum Vitae

### David Eugene Osher, PhD

Department of Psychology  
The Ohio State University  
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Columbus, OH 43210

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### Education and Work Experience

**The Ohio State University, Columbus, OH**  
Research Scientist

Sept 2017-Present

**Boston University, Boston, MA**  
Postdoctoral Researcher  
Advised by Dr. David Somers

2013-2017

**Massachusetts Institute of Technology, Cambridge, MA**

Ph.D., Computational Neuroscience

Advised by Dr. John D.E. Gabrieli

Thesis committee: Drs. John D.E. Gabrieli, Robert Desimone, Rebecca Saxe, Bruce Fischl

2007-2013

**The Ohio State University, Columbus, OH**

B.Sc. in Psychology

*Cum Laude*

*With Honors in the Arts and Sciences*

*With Distinction in Psychology*

2001-2006

### Grants, Fellowships, and Honors

R01 1R01DC017711 (Co-I) "Laying the Groundwork for Personalized Medicine in Aphasia Therapy: Genetic and Cognitive Predictors of Restorative Treatment Response"	2019-2024
R01 1R01AT010472-01 (Co-I) "Chemotherapy-Induced Neuropathy: Arts-Based Patient-Care Solutions"	Submitted
Ohio Supercomputer Champion Award	2019-2024
NEI Early Career Scientist Travel Grant	2019
Hariri Institute for Computing and Computational Science & Engineering Research Award	2016-2017
Hariri Institute for Computing and Computational Science & Engineering Research Award	2014-2015
NIMH Developmental Cognitive Neuroscience	2011-2013
NEI Integrative Training Award in Vision	2008-2011
NSF Graduate Research Fellowship Honorable Mention	2009
NIGMS Integrative Neuronal Systems Training Award	2007
Graduation with Honors and Distinction, Cum Laude, Ohio State University	2006
Trustees Scholarship	2001-2005

### Publications and manuscripts

"Cortical selectivity driven by connectivity: Innate connectivity patterns of the visual word form area" Li J., **Osher D.E.**, Hansen H.A., Saygin Z.M. (submitted)

- “Predicting an individual's Dorsal Attention Network from functional connectivity fingerprints.” **Osher D.E.**, Brissenden J.A., Somers D.C., (2019). Journal of Neurophysiology, 122(1), 232-240.
- “Topographic Cortico-Cerebellar Networks Revealed by Visual Attention and Working Memory.” Brissenden J.A., Tobynne S.M., **Osher D.E.**, Levin E.J., Halko M.A., Somers D.C., (2018). Current Biology, 28(21). 3364-3372.e5.
- “Prediction of individualized task activation in sensory modality-selective frontal cortex with connectome fingerprinting.” Tobynne S.M, Somers D.C., Brissenden J.A., Michalka S.W., Noyce A.L., **Osher D.E.** (2018). Neuroimage, 183, 173–185.
- “Sensory-biased attention networks in human lateral frontal cortex revealed by intrinsic functional connectivity.” \*Tobynne S.M., \***Osher D.E.**, Michalka S.W., Somers D.C. (2017). NeuroImage, 162. 362-372.
- “Connectivity Precedes Function in the Development of the Visual Word Form Area.” Saygin, Z.M., **Osher D.E.**, Norton E. S., Youssoufian D.A., Beach S.D., Feather J., Gaab, N., Gabrieli, J.D., Kanwisher N. (2016). Nature Neuroscience, 19(9), 1250-5.
- “Functional Evidence for a Cerebellar Node of the Dorsal Attention Network.” Brissenden J.A., Levin E.J., **Osher D.E.**, Halko M.A., Somers D.C. (2016). Journal of Neuroscience, 36(22), 6083-96.
- “Structural connectivity of the developing human amygdala.” Saygin Z. M., **Osher D.E.**, Martin R., Koldewyn K., Redcay E., Gabrieli J.D.E., Sheridan M. (2015). PLoS ONE, 10(4): e0125170.
- “Structural Connectivity Fingerprints Predict Cortical Selectivity for Multiple Visual Categories across Cortex.” **Osher D.E.**, Saxe R., Koldewyn K., Gabrieli J.D.E., Kanwisher N., Saygin Z.M. (2016, ePub 2015). Cerebral Cortex, 26(4), 1668-83.
- “Tracking early reading development: DWI measures of white matter volume and integrity correlate with Phonological Awareness in children before formal reading instruction.” Saygin Z.M., Norton E.S., **Osher D.E.**, Beach S. B., Cyr A.B., Ozranov-Palchik O., Yendiki A., Fischl B., Gaab N., Gabrieli J.D.E. (2013). Journal of Neuroscience, 33(33), 13251-8.
- “Anatomical connectivity patterns predict face-selectivity in the fusiform gyrus.” \*Saygin Z.M., \***Osher D.E.**, Koldewyn K., Reynolds G., Gabrieli J.D.E., Saxe R.R. (2012). Nature Neuroscience, 15(2), 321-327.
- “Predicting functional activity from structural connectivity.” **Osher D.E.**, Saygin Z. and Gabrieli J. (2011) 5. Frontiers in Neuroinformatics. doi: 10.3389/conf.fninf.2011.08.00010.
- “Connectivity-based segmentation of human amygdala nuclei using probabilistic tractography.” \*Saygin Z.M., \***Osher D.E.**, Augustinack J., Fischl B., Gabrieli J.D.E. (2011). NeuroImage, 56(3), 1353-1361.

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## Conference Presentations

Neuroscience 2019. “The connectivity fingerprinting toolbox.” Osher D.E., Saygin Z.M.

Neuroscience 2019. “Innate connectivity patterns of the visual word form area.”

Vision Sciences Society 2019. “Connectivity Fingerprints for the Visual Brain and Behavior.” Osher D.E., Saygin Z.M.

Vision Sciences Society 2018. "Predicting the location of macaque face patches with functional connectivity." Osher D.E., Fuller-Deets J., Conway B.

Vision Sciences Society 2017. "Predicting an individual's own Dorsal Attention Network from their functional connectivity fingerprint." Osher D.E., Tobyn S.M., Brissenden J.A., Noyce A.L., Michalka S.W., Levin E.J., Somers D.C.

Vision Sciences Society 2017. "Visuospatial attentional selectivity within the cerebellum." Brissenden J.A., Osher D.E., Levin E.J., Halko M.A., Somers D.C.

Vision Sciences Society 2017. "Mapping Task Response Profiles in Visual-biased Frontal Cortex." Tobyn S.M., Noyce A.L., Osher D.E., Brissenden J.A., Levin E.J., Michalka S.W., Somers D.C.

Vision Sciences Society 2017. "Visual, spatial, or visuospatial? Disentangling sensory modality and task demands in frontal cortex." Noyce A.L., Tobyn S.M., Michalka S.W., Osher D.E., Shinn-Cunningham B., Somers D.C.

Neuroscience 2016. "Visuospatial representations within cerebellar node of the dorsal attention network." Brissenden J.A., Osher D.E., Levin E.J., Halko M.A., Somers D.C.

Neuroscience 2016. "Functional connectivity predicts individual differences in sensory-biased caudolateral prefrontal cortex response to attention and working memory." Tobyn S.M., Osher D.E., Michalka S.W., Noyce A.L., Somers D.C.

Neuroscience 2016. "Connectivity precedes function in the development of the visual word form area." Saygin Z.M., Osher D.E., Norton E., Youssoufian D., Beach S., Feather J., Gaab N., Gabrieli J., Kanwisher N.

Human Brain Mapping 2015. "Connectivity precedes function in the development of the visual word form area." Kanwisher N., Osher D., Norton E., Youssoufian D., Beach S., Feather J., Gabrieli J., Saygin Z.

Human Brain Mapping 2015. "COMA: A registration approach specifically for subcortical structures." Osher D.E., Tobyn S.M., Congden K., Somers D.C.

Vision Sciences Society 2015. "Structural and functional connectivity of visual and auditory attentional networks: insights from the Human Connectome Project." Osher D.E., Tobyn S.M., Congden K., Michalka S.W., Somers D.C.

Vision Sciences Society 2015. "Cerebellar contributions to visual attention and visual working memory revealed by functional MRI and intrinsic functional connectivity." Brissenden J.A., Levin E.J., Osher D.E., Devaney K.J., Halko M.A., Somers S.C.

Cognitive Neuroscience Society 2015. "Connectivity fingerprints for the social brain." Saygin Z.M., Osher D.E., Koldewyn K., Gabrieli J.D.E., Saxe R.R., Kanwisher N.

Cognitive Neuroscience Society 2015. "Attentional modulation in the cerebellum revealed by a multiple object tracking task and cerebro-cerebellar functional connectivity." Levin E.J., Brissenden J.A., Devaney K.J., Rosen M.L., Osher D.E., Halko M.A., Somers S.C.

Cognitive Neuroscience Society 2015. “Cerebro-cerebellar functional connectivity predicts cerebellar activation during visual working memory task performance.” Brissenden J.A., Levin E.J., Osher D.E., Devaney K.J., Halko M.A., Somers S.C.

Neuroscience 2014. “Frontal networks for visual and auditory attention: Mining *structural connectivity* in the Human Connectome Project.” Osher D.E., Tobyne S.M., Michalka S.W., Somers D.C.

Neuroscience 2014. “Frontal networks for visual and auditory attention: Mining *functional connectivity* in the Human Connectome Project.” Tobyne S.M., Osher D.E., Michalka S.W., Somers D.C.

Neuroscience 2012. “The functional connectomics underlying dyslexic adaptation deficits.” Osher D.E., Saygin Z.M., Perrachione T., Gabrieli J.D.E.

Neuroscience 2012. “Structural connectivity predicts risk for dyslexia in kindergarteners.” Saygin Z.M., Norton E.S., Osher D.E., Beach S. B., Cyr A.B., Ozranov-Palchik O., Gaab N., Gabrieli J.D.E.

Neuroscience 2011. “Anatomical connectivity predicts whole-brain functional responses to visual categories.” Osher D.E., Saygin Z.M., Koldewyn K., Saxe R.R., Gabrieli J.D.E.

Neuroscience 2011. “Structural connectivity of the developing human amygdala.” Saygin Z.M., Osher D.E. Martin R., Reynolds G., Koldewyn K., Gabrieli J.D.E, Sheridan M.

Neuroinformatics 2011. “Predicting functional activity from structural connectivity.” Osher D.E., Saygin Z.M. and Gabrieli J.D.E.

Neuroscience 2010. “Predicting face-selective fusiform voxels from diffusion-based connectivity alone.” Saygin Z.M., Osher D.E., Saxe R.R., Gabrieli J.D.E.

Human Brain Mapping 2010. “Connectivity-based segmentation of human amygdala nuclei using probabilistic tractography.” Saygin Z.M., Osher D.E., van der Kouwe A., Gabrieli J.D.E.

Richard J. & Martha D. Denman Undergraduate Research Forum 2006. “A Method for Assessing Attentional Bias in Anxious Rats.” Osher DE, Vasey, M. W., Givens, B.

Ohio St. Psychology Dept. Undergraduate Research Colloquium 2006. “Attentional Bias and Anxiety in Rodents.” Osher DE, Vasey, M. W., Givens, B.

## **Professional Memberships**

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Vision Sciences Society	2015-present
International Neuroinformatics Coordinating Facility	2011-2012
Gordon Research Conference Membership	2009-2011
Organization for Human Brain Mapping	2008-present
American Association for the Advancement of Science	2008-2013
Society for Neuroscience	2005-present

## **Invited Talks, Teaching, Guest Lectures**

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### *Invited Talks*

Society for Neuroscience	Oct 23 2019
“The Connectivity Fingerprinting Toolbox”	

Carnegie Mellon University	Aug 20 2019
“Individual Variation in Structure and Function of the Visual and Attentive Brain”	
University of California, Irvine	Mar 13 2019
“Structure and Function in the Visual and Attentive Brain”	
The Ohio State University	Sep 15 2018
“Visual Attention in Cerebral and Cerebellar Networks”	
The Ohio State University	Oct 18 2017
“Structural and functional connectivity fingerprints in vision and attention”	
The Ohio State University	Feb 12 2016
“Functionally Relevant Networks”	
Society for Neuroscience	Nov 16 2014
“Frontal networks for visual and auditory attention: Mining structural connectivity in the Human Connectome Project.”	
Harvard University	Jul 14 2014
“Statistical Approaches and Analytical Strategies for Dense Network Data”	
Johns Hopkins University	Dec 10 2013
“Diffusion Weighted Imaging: A Tutorial on Principles, Analysis, and Applications”	
Biomedical Imaging and Analysis Seminar Series at CSAIL	Apr 19 2012
“Predicting functional activity from anatomical connectivity”	
MIT Mini-Symposium on Research in Development and Cognitive Neuroscience	Mar 30 2012
“Predicting neural responses from anatomical connectivity, and its application to developmental disorders”	
Society for Neuroscience	Nov 14 2011
“Anatomical connectivity predicts whole-brain functional responses to visual categories”	
MIT Seminar Series	Aug 31 2011
“Predicting brain responses from connectivity alone”	

### *Teaching*

MRI Bootcamp, OSU	Summer 2019
Perception and Behavior, Boston University	Spring 2017
Physiological Psychology, Boston University	Spring 2017
Neurophysiology of Memory, MIT	Fall 2009
Cognitive Neuroscience, MIT	Fall 2008

### *Guest Lectures*

Visual Perception. Psychology 5628, OSU	Fall 2018
Information Processing in the Hippocampus. 9.31, MIT	Fall 2009

### **Public Media**

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ArsTechnica 08/11/16. <http://arstechnica.com/science/2016/08/brain-wiring-needed-for-reading-isnt-learned-but-in-place-prior-to-reading/>

MIT featured news 08/08/16. <http://news.mit.edu/2016/brain-connections-key-reading-0808>

NPR news 08/14/13. <http://commonhealth.wbur.org/2013/08/tracking-dyslexia-in-the-preschool-brain>

CBS news 08/14/13. [http://www.cbsnews.com/8301-204\\_162-57598512/brain-scans-may-diagnose-dyslexia-before-kids-can-even-read](http://www.cbsnews.com/8301-204_162-57598512/brain-scans-may-diagnose-dyslexia-before-kids-can-even-read)

FOX news 08/14/13. <http://www.foxnews.com/health/2013/08/14/can-mri-brain-scans-identify-children-with-dyslexia/>

BBC news 08/13/13. <http://www.bbc.co.uk/news/health-23679363>

US News & World Report 08/13/13. <http://health.usnews.com/health-news/news/articles/2013/08/13/mri-might-allow-earlier-diagnosis-of-dyslexia-study>

MIT featured news 08/13/13. <http://web.mit.edu/newsoffice/2013/brain-scans-may-help-diagnose-dyslexia-0813.html>

MIT featured news 01/03/12. <http://web.mit.edu/newsoffice/2012/face-recognition-0103.html>

Simons Foundation Autism Research Initiative 11/15/11. <http://sfari.org/news-and-opinion/conference-news/2011/society-for-neuroscience-2011/amygdalas-links-to-other-brain-regions-wane-with-age>

Simons Foundation Autism Research Initiative 05/18/11. <https://sfari.org/news-and-opinion/toolbox/2011/imaging-tool-maps-regions-within-amygdala>

## **Service**

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CCBBI Technical Committee	2019-
Ohio Supercomputer Champion User	2019-
Interview Weekend Panel Member, MIT	2009-2011
Co-chair, CogLunch Colloquium, MIT	2008-2009
President, Neuroscience and Psychobiology Student Association, OSU	2005-2006
Vice-President, Neuroscience and Psychobiology Student Association, OSU	2005

## **Peer-Reviewing**

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Nature Communications  
 Nature Neuroscience  
 Cerebral Cortex  
 NeuroImage  
 Journal of Neuroscience  
 Journal of Neurophysiology  
 Human Brain Mapping

## **Mentorships**

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### *Graduate Students*

#### Boston University

Sean Tobyne  
 James Brissenden

### *Undergraduate Research Opportunities Program*

#### Boston University

John Baublitz  
 Keith Congden  
 Aparna Panja  
 Akshay Ajban

#### MIT

Heather Acuff  
 Amber Li  
 Elisha Gray  
 Nathan Arce