

# Mark D. Lescroart, Ph.D.

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## Current position

Postdoctoral Research Fellow, Helen Wills Neuroscience Institute  
University of California, Berkeley; Laboratory of [Dr. Jack Gallant](#)

Feb 2011-present

## Research topics

Intermediate-level visual perception, attention, computational modeling, fMRI

## Education

University of Southern California, Los Angeles, CA

Aug 2005-May 2011

Ph.D. in Neuroscience conferred May 2011; Laboratory of [Dr. Irving Biederman](#)

University of Southern California, Los Angeles, CA

Aug 1998-May 2002

B.S. in Psychobiology; minor in Japanese; graduated summa cum laude (3.91 GPA)

## Publications

**Lescroart, M.D.** & Gallant, J.L. (in preparation) Scene-selective areas in human cortex represent the orientation of and distance to large surfaces.

**Lescroart, M.D.**, Nishimoto, S., & Gallant, J.L. (in preparation) Intermediate human visual areas represent the locations of boundary contours in naturalistic movies.

Abdel-Ghaffar, Samy A; Gallant, Jack L.; Huth, Alex G; Stansbury, Dustin E., **Lescroart, Mark D**; Cowen, Alan S; & Bishop, Sonia J. (in preparation) Combined Representation of Emotional and Semantic Information within Occipital-Temporal Cortex.

**Lescroart, M. D.**, Kanwisher, N., & Golomb, J. D. (2016). No Evidence for Automatic Remapping of Stimulus Features or Location Found with fMRI. *Frontiers in Systems Neuroscience*, 10, 53. doi:10.3389/fnsys.2016.00053 [[link](#) / [pdf](#)]

**Lescroart, M.D.**, Stansbury, D., & Gallant, J.L. (2015) Fourier power, subjective distance, and object categories all provide plausible models of BOLD responses in scene-selective visual areas. *Frontiers in Computational Neuroscience*, 9:135. doi: 10.3389/fncom.2015.00135 [[link/pdf](#)]

Gao, J. S., Huth, A. G., **Lescroart, M. D.**, & Gallant, J. L. (2015). Pycortex: an interactive surface visualizer for fMRI. *Frontiers in Neuroinformatics*, 9. doi:10.3389/fninf.2015.00023 [[link/code/pdf](#)]

Sato, T., Uchida, G., **Lescroart, M. D.**, Kitazono, J., Okada, M., & Tanifuji, M. (2013) Object representation in inferior temporal cortex is organized hierarchically in a mosaic-like structure. *The Journal of Neuroscience*; 33(42), 16642–56. doi:10.1523/JNEUROSCI.5557-12.2013 [[link/pdf](#)]

**Lescroart, M.D.** & Biederman, I. Cortical representation of medial axis structure. (2012) *Cerebral Cortex*. (New York, N.Y. : 1991). doi:10.1093/cercor/bhs046 [[link/pdf](#)]

Hayworth, K.J., **Lescroart, M.D.**, & Biederman, I. (2011) Neural encoding of relative position. *Journal of Experimental Psychology: Human Perception and Performance*. 37(4), 1032-1050. doi: 10.1037/a0022338 [[link/pdf](#)]

**Lescroart, M.D.**, Biederman, I., Yue, X., & Davidoff, J. (2010) A cross-cultural study of the representation of shape: Sensitivity to generalized cone dimensions. *Visual Cognition*.18:1, 50-66

First published on: 22 December 2008 (iFirst) [[link/pdf](#)]

Kim, Jiye G., Biederman, I., **Lescroart, M.D.**, & Hayworth, K.J. (2009) Adaptation in the Lateral Occipital Complex (LOC): Shape or Semantics? *Vision Research*, 49, 2297-2305 [[link/pdf](#)]

Xu, X., Yue, X., **Lescroart, M.D.**, Kim, J.G. & Biederman, I. (2009) Adaptation in the Fusiform Face Area (FFA): Image or Person? *Vision Research*, 49, 2800-2807 [[link/pdf](#)]

### **Selected Conference Presentations**

Lescroart, M.D., Agrawal, P., & Gallant, J.L. (2016) Both convolutional neural networks and voxel-wise encoding models of brain activity derived from ConvNets represent boundary-and surface-related features. Talk presented at the Meeting of the Vision Sciences Society, St. Petersburg, FL.

Lescroart, M.D., Stansbury, D. E., & Gallant, J.L. (2015) Semantics, space, and spatial frequency all describe the same representation in scene-selective areas of the human brain. Talk presented at the Society for Neuroscience meeting, Chicago, IL.

Lescroart, M.D. & Gallant, J.L. (2015) A model of the local environment predicts responses in human scene-selective cortex. Talk presented at the Meeting of the Vision Sciences Society, St. Petersburg, FL.

Lescroart, M.D., Nishimoto, S., & Gallant, J.L. (2014) Intermediate human visual areas represent the locations of silhouette edges in natural movies. Talk presented at the Meeting of the Vision Sciences Society, Naples, FL.

Lescroart, M.D., & Gallant, J.L. (2014). Object silhouettes and semantic tuning in human lateral occipital cortex. Poster presented at Society for Neuroscience, Washington, DC.

Lescroart, M.D., Nishimoto, S., & Gallant, J.L. (2013) Representation of object contour features in intermediate visual areas in the human brain. Poster presented at the Meeting of the Vision Sciences Society, Naples, FL.

Lescroart, M.D. & Biederman, I. (2011) The medial axis structures of novel objects are spontaneously perceived despite variability in the objects' orientations and component part shapes. Talk presented at the Meeting of the Vision Sciences Society, Naples, FL.

Lescroart, M.D. & Biederman, I. (2010) Voxels in LO distinguish objects with different arrangements of the same component parts. Talk presented at the Society for Neuroscience meeting, San Diego, CA.

Lescroart, M.D., Hayworth, K.J., & Biederman, I. (2009) Is there an object-centered map in LOC? Poster presented at the Meeting of the Vision Sciences Society, Naples, FL

Lescroart, M.D., Yue, X., Davidoff, J., & Biederman, I. (2007). A Cross-Cultural Study of the Representation of Shape Dimensions. Talk presented at OPAM. Long Beach, CA

Lescroart, M.D., Hayworth, K.J., & Biederman, I. (2007). Evidence for Relative Position Coding in the Posterior Fusiform Gyrus. Talk presented at Society for Neuroscience. San Diego, CA

### **Non-academic publications**

Lescroart, M.D. Favorite Colors: Color Preference Determined by Desirability of Objects. *Scientific American Mind*, Sept./Oct. 2010 [[link](#)]

Lescroart, M.D. The Healing Power of Touch: Tickling a rat's whiskers after it has a stroke prevents brain damage. *Scientific American Mind*, July/Aug. 2011 [[link](#)]

### **Awards**

[Ruth L. Kirschstein National Research Service Award](#) (Postdoctoral NRSA) Nov 2012-present

*Mapping the representation of shape dimensions across the visual hierarchy*  
(F32EY021710).

	USC Travel award for travel to OHBM meeting, Barcelona, Spain	Jun 2010
	Rockwell Dennis Hunt Scholastic Award from the University of Southern California Awarded to the graduate student who is an alumnus and is most representative of the University's traditions and objectives	Jan 2006
	Trustee (full tuition) Scholarship from the University of Southern California Recognized as a USC Renaissance Scholar	1998-2002 May 2002
	For outstanding study in disparate disciplines	
	Phi Beta Kappa National Honor Society	Spring 2001
<b>Work Experience</b>	Extreme Learning Center Tutor, SAT prep instructor Designed and ran an after-school SAT prep class for disadvantaged students Managed publicity, curriculum design, and budgeting.	2004 – 2005
	Substitute teacher, San Jose Unified School District Managed classrooms of middle and high school students	2004 – 2005
	Assistant Language Teacher, Japan Exchange & Teaching program Developed lessons tailored to students of varied ages / English abilities.	2002 –2003
<b>Skills</b>	Programming languages: Python, Matlab, JavaScript, bash Languages: Conversational fluency in Spanish & Japanese Databases: MongoDB, CouchDB	
<b>Courses</b>	Summer Institute in Cognitive Neuroscience (UC Santa Barbara)	Summer 2009
	Riken BSI Summer Internship (Laboratory of Dr. Manabu Tanifuji)	Summer 2008
	UCLA Semel Institute Advanced Neuroimaging	Summer 2007
<b>Outreach</b>	Dinner with a Scientist (Oakland Unified School District)	2013, 2015
	Bay Area Science Festival	
	Art in Science evening	2012
	Illusion booth at AT&T park finale event	2012
	<i>Ghost room</i> exhibit at the California Academy of Sciences <a href="#">[event]</a>	2013-2014
	Public talks	
	East Bay Science Café	2012
	Science@Cal <a href="#">[video]</a>	2013
	NerdNite East Bay <a href="#">[video]</a>	2013
	Scarlet City Coffee House	2015
	Participated as a blogger in Knight Digital Media Center's conference <a href="#">Best Practices: Covering Science in Cyberspace</a> <a href="#">[sample 1]</a> , <a href="#">[sample 2]</a> , <a href="#">[sample 3]</a>	Mar 2007