

# Michelle R. Greene

## Curriculum Vitae

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## EDUCATION

- 2009            Ph.D, Cognitive Science, Massachusetts Institute of Technology
- 2004            B.S., Psychobiology, University of Southern California

## PROFESSIONAL APPOINTMENTS

- 2016 -            Research Scientist, Department of Computer Science, Stanford University
- 2015 - 2016      Assistant Professor of Computational Sciences, Minerva Schools at KGI
- 2013 - 2015      Research Fellow, Department of Computer Science, Stanford University
- 2011 - 2013      Postdoctoral Fellow, Department of Computer Science, Stanford University
- 2009 - 2011      Postdoctoral Fellow, Harvard Medical School, Brigham & Women's Hospital,  
Department of Surgery

## FELLOWSHIPS AND AWARDS

- 2015            Center for Cognitive and Neurobiological Imaging Seed Grant (Stanford)
- 2009-2012      Ruth L. Kirschstein National Research Service Award (NEI-NRSA)
- 2005-2009      National Science Foundation Graduate Research Fellowship (NSF)

## PUBLICATIONS

### Articles Submitted / Revision / In Press

**Greene, M.R.**, Botros, A., Beck, D., & L Fei-Fei. (under review, *Nature Human Behaviour*)  
Revealing Internal Category Representations.

### Articles in Preparation

**Greene, M.R.** & Wolfe, J.M., Estimating Human Observers' Contextual Knowledge with  
Shannon's Guessing Game.

### Refereed Articles

### Citations

- 2016 Vessel, E.A., Biederman, I., Subramaniam, S., & **Greene, M.R.** 0  
 Effective Signaling of Surface Boundaries by L-Vertices Reflect  
 the Consistency of their Contrast in Natural Images.  
*Journal of Vision*.
- 2016 Jordan, M.C., **Greene, M.R.**, Beck, D.B., & L. Fei-Fei. Typicality 0  
 Sharpens Category Representations in Object-Selective Cortex.  
*NeuroImage*, 134, 170-179.
- 2016 **Greene, M.R.** Estimates of Object Frequency are 1  
 Frequently Overestimated. *Cognition*, 149, 6-10.
- 2016 **Greene, M.R.**, Baldassano, C., Esteva, A., Beck, D.M., & L. 0  
 Fei-Fei. Visual Scenes are Categorized by Function. *Journal*  
*of Experimental Psychology: General*, 145(1), 82-94.
- 2015 Jordan, M.C., **Greene, M.R.**, Beck, D. & Li Fei-Fei. (2015) 8  
 Basic level category structure emerges gradually across human  
 ventral visual cortex. *Journal of Cognitive Neuroscience* 27(7),  
 1427-1446.
- 2015 **Greene, M.R.**, Botros, A., Beck, D.M. & L. Fei-Fei. What you see 3  
 is what you expect: rapid scene understanding benefits from  
 prior experience. *Attention, Perception, & Psychophysics*, 77(4),  
 1239-1251.
- 2014 **Greene, M.R.** & L. Fei-Fei. Visual Categorization is Automatic 6  
 and Obligatory: Evidence from a Stroop-like Paradigm.  
*Journal of Vision*, 14(1).
- 2013 **Greene, M.R.**, Statistics of High-level Scene Context. 16  
*Frontiers in Perception Science*. 4, 777.
- 2013 Boucart, M., Moroni, C., Thiabaut, M., Szaffarczyk, M., & 23  
**Greene, M.R.**, Scene categorization at large visual eccentricities.  
*Vision Research*, 86, 35-42.
- 2012 **Greene, M.R.** Liu, T. & Wolfe, J.M., Reconsidering Yarbus: 54  
 Pattern Classification Cannot Predict Observers' Task From  
 Scan Paths. *Vision Research*, 62, 1-8.
- 2011 **Greene, M.R.**, & Wolfe, J.M., Global Image Properties Do 11  
 Not Guide Visual Search. *Journal of Vision*, 11(6).
- 2011 Wolfe, J.M., Vo, M.L-H., Evans, K.K., & **Greene, M.R.** 171  
 Visual search in scenes involves selective and non-selective  
 pathways. *Trends in Cognitive Sciences*. 15(2), 77-84.

- 2011 Park, S., Brady, T.F., **Greene, M.R.** & Oliva, A. 91  
Disentangling scene content from spatial boundary:  
Complementary roles for the PPA and LOC in representing  
real-world scenes *Journal of Neuroscience*. 31(4), 1333-1340.
- 2010 **Greene, M.R.**, & Oliva, A. Adapting to Scene Space: High-Level 36  
Aftereffects to Global Scene Properties. *Journal of Experimental  
Psychology: Human Perception and Performance*. 36(6), 1430-1432.
- 2009 **Greene, M.R.** & Oliva, A. The Briefest of Glances: the Time 203  
Course of Natural Scene Understanding. *Psychological Science*,  
20(4), 464-472.
- 2009 **Greene, M.R.** & Oliva, A. Recognition of Natural Scenes from 224  
Global Properties: Seeing the Forest Without Representing the  
Trees. *Cognitive Psychology*, 58(2), 137-176.

### Refereed Conference Proceedings

- 2012 **Greene, M.R.**, & Li Fei-Fei. Automatic basic-level object and scene categorization.  
*Visual Cognition*, 20(9), 1028-1031.
- 2006 **Greene, M.R.** & Oliva, A. Natural Scene Categorization from Conjunctions of  
Ecological Global Properties. *Proceedings of the 28th Annual Conference of the Cognitive  
Science Society*, Vancouver, July, 291-296.

### Book Reviews

- 2015 Kveraga & Bar, *Scene Vision*. Published in *Perception*.

## CONFERENCE ACTIVITY

### Talks

- 2015 “How Many Objects Does it Take to Understand a Scene?” Meeting of the  
Psychonomics Society, November 19-22, Chicago IL.
- 2015 “Functions Provide a Fundamental Categorization Principle for Scenes” w/  
Baldassano, C., Esteva, A., Beck, D.M., & L. Fei-Fei. Meeting of the Vision Sciences  
Society, May 15-20, St. Pete Beach, Florida.
- 2015 “Category Boundaries and Typicality Warp the Neural Representation Space of Real-  
World Object Categories” w/ Jordan, M.C., Beck, D.M., & L. Fei-Fei. Meeting of  
the Vision Sciences Society, May 15-20, St. Pete Beach, Florida.

- 2014 “Scene Categories Reflect Affordances” w/ Baldassano, C., Esteva, A., Beck, D.M., & L. Fei-Fei. Meeting of the Psychonomics Society, November 20-23, Long Beach, California.
- 2014 “Cohesion and Distinctiveness in Human Visual Cortex Favor Basic Level Representations. w/ Iordan, M.C., Beck, D.M., & L. Fei-Fei. Meeting of the Society for Neuroscience, November 15-19, Washington D.C.
- 2014 “Human estimates of object frequency are frequently over-estimated” Vision Sciences Society, May 16-21, St. Pete Beach, Florida.
- 2013 “Discovering mental representations of complex natural scenes.” Vision Sciences Society, w/ Botros, A., Beck, D.M., & L. Fei-Fei, May 10-15, Naples, Florida.
- 2013 “Typicality sharpens object representations in object-selective cortex.” Vision Sciences Society, w/ Iordan, M.C., Beck, D.M., & L. Fei-Fei. May 10-15, Naples, Florida.
- 2012 “Automatic basic-level object and scene categorization.” Object Perception Attention and Memory (OPAM), w/ L. Fei-Fei. November 15, Minneapolis, MN.
- 2012 “Neural Representations of Object Categories at Multiple Taxonomic Levels.” Vision Sciences Society, w/ Iordan, M.C., Beck, D.M. & L. Fei-Fei. May 11-16, Naples Florida.
- 2011 “Reconsidering Yarbus: Pattern Classification Cannot Predict Observer’s Task from Scan Paths.” Vision Sciences Society, w/ Liu, T., & Wolfe, J.M. May 6-11, Naples Florida.
- 2009 “Natural scene categorization by global scene properties: Evidence from patterns of fMRI activity”. Vision Sciences Society, w/ Park, S., Brady, T., & Oliva, A. May 8-13, Naples Florida.
- 2008 “High-level Aftereffects to Natural Scenes.” Vision Sciences Society, w/ A. Oliva, May 9-14, Naples Florida.
- 2006 “Natural Scene Categorization from Conjunctions of Ecological Global Properties.” Cognitive Science Society, w/ A. Oliva, July 26-29, Vancouver, B.C.
- 2006 “From zero to gist in 200msec: the time course of scene recognition.” Scene Understanding Symposium (SUNS), w/ A. Oliva, February 17, Cambridge Massachusetts.

## **Posters**

- 2015 “Typicality Sharpens Object Representations in Object Selective Cortex” Cognitive

- Neuroscience Society w/ M.C. Jordan, D.M. Beck & L. Fei-Fei. March 28-31, San Francisco, California.
- 2014 “Scene Category Prototypes: Reconstruction of Internal Templates and Prediction of Rapid Classification”. Association for Psychological Science, w/ A. Botros, D.M. Beck & L. Fei-Fei, May 22-26, San Francisco, California.
- 2013 “Oddness at a glance: unraveling the time course of typical and atypical scene perception,” Vision Sciences Society, w/ Botros, A., & L. Fei-Fei, May 10-15, Naples, Florida.
- 2013 “Internal representations of real-world scene categories.” Cognitive Neuroscience Society, w/ Botros, A., Beck, D.M., & L. Fei-Fei. April 5-8, San Francisco, California.
- 2013 “Real-world objects acquire basic-level advantage in occipito-temporal cortex.” Cognitive Neuroscience Society, w/ Jordan, M.C., Beck, D.M., & L. Fei-Fei. April 5-8, San Francisco, California.
- 2012 “Scene categorization at large visual eccentricities.” European Conference of Visual Perception, w/ Boucart, M., Thibaut, M., & Szaffarczyk, S. September 2-6, Sardinia Italy.
- 2012 “A large-scale taxonomy of real-world scenes.” Vision Sciences Society, w/ L. Fei-Fei, May 11-16, Naples Florida.
- 2012 “The Relative Effectiveness of Different vs. Shared Mask Features on the Processing of Scene Gist.” Vision Sciences Society, w/ Witherspoon, R., & Castelhana, M., May 11-16, Naples Florida.
- 2011 “Depth and Size Information Reduce Effective Set Size for Visual Search in Real-World Scenes.” Vision Sciences Society, w/ Sherman, A., & Wolfe, J.M., May 6-11, Naples Florida.
- 2010 “What’s behind the box? Playing Shannon’s guessing game with scenes.” Vision Sciences Society, w/ Wolfe, J.M., Oliva, A., & Torralba, A., May 7-12, Naples Florida.
- 2009 “Rapid Scene Understanding: Evidence of Global Property Processing before Basic-level Categorization.” Vision Sciences Society, w/ Park, S., & Oliva., May 8-13, Naples Florida.
- 2008 “Calculating Scene Context: What 47,928 Objects can tell us about scene categories.” Scene Understanding Symposium (SUNS), w/ Oliva, A., & Torralba, T., February 1, Cambridge Massachusetts.
- 2007 “High-level aftereffects to natural scenes: adapting to the building blocks of gist.”

- Scene Understanding Symposium (SUNS), w/ A. Oliva., February 1-2, 2007, Cambridge Massachusetts.
- 2006 “Seeing the {Camouflage+Closed+Natural=Forest} for the trees: Rapid scene categorization can be mediated by Conjunctions of Global Scene Properties.” Vision Sciences Society, w/ A. Oliva, May 5-10, Sarasota Florida.
- 2006 “Constructing Depth Information in Briefly Presented Scenes.” Vision Sciences Society, w/ Konkle, T., McDaniel, E., & Oliva, A., May 5-10, Sarasota Florida.
- 2006 “Not all scene categories are created equal: the role of object and layout diagnosticity in scene gist understanding.” Vision Sciences Society, w/ Oliva, A., Konkle, T., & Torralba, A., May 5-10, Sarasota Florida.
- 2005 “Better to run than hide – time course of naturalistic scene decisions.” Sciences Society, w/ A. Oliva, May 6-11, Sarasota Florida.
- 2004 “Perceiving visual complexity...Objects do not matter.” Object Perception Attention and Memory (OPAM), w/ A. Oliva, November 18, Minneapolis, MN.

## **INVITED TALKS**

- 2014-10 University of Illinois, Urbana-Champaign, Psychology Department
- 2014-04 University of Pennsylvania, Department of Psychology
- 2014-04 University of Delaware, Department of Psychology
- 2014-04 George Washington University, Department of Psychology
- 2014-04 Johns Hopkins University, Department of Cognitive Science
- 2014-04 National Institute of Mental Health
- 2014-03 University of Southern California, Department of Neuroscience
- 2014-03 University of California at Riverside, Department of Psychology
- 2013-08 University of California Berkeley, Bay Area Vision Research Meeting
- 2012-02 University of California Santa Cruz, Department of Psychology
- 2011-02 Stanford University, Department of Computer Science
- 2010-10 Smith-Kettlewell Eye Institute
- 2009-09 Harvard Medical School / Brigham & Women’s Hospital
- 2006-03 Harvard University (w/ A. Torralba)
- 2005-12 Harvard Medical School / Brigham & Women’s Hospital

## **TEACHING**

### **Minerva Schools at KGI, Instructor**

Formal Analysis (2015-2016)

### **Minerva Schools at KGI, Design**

CS110: Computation: Solving Problems with Algorithms  
SS110: Perception, Cognition, & Reality

### **Tufts University, Experimental College, Sole Instructor/Course Design**

Introduction to Neuroscience, Neuroethics, and the Future (Fall, 2009)

### **Massachusetts Institute of Technology, Teaching Assistant**

Cognitive Science (Spring, 2009)  
Laboratory in Cognitive Science (Fall, 2006)  
Introduction to Psychology (Spring, 2006)

### **Outreach**

- 2011            “Understanding Science in the Media,” HSSP: 8-week course for high school students
- 2009            “Big Blunders of Scientific Ethics in Cog-Neuroscience,” Spark! One-day seminar for high school students
- 2008            “Neuroscience for Future Presidents,” Splash! One-day seminar for high school students

### **MENTORSHIP**

- 2016 -            Khang Duong, Raymundo Gonzalez Leal, Huy Nguyen: Undergraduate volunteers. Project: “Revealing Internal Scene Category Representations”.
- 2012 – 2013    Abraham Botros: Full-time research assistant. Co-authoring projects: “Obtaining Scene Category Prototypes from Random Image Features”; “Oddness at a glance....”
- 2010            Tommy Liu: Research Science Institute Student. Co-authored project: “Reconsidering Yarbus: Pattern Classification Cannot Predict Observer’s Task from Scan Paths”
- 2010            Kimberly Lamarre: Project Success Student. Aided with project: “Global Image Properties Do Not Guide Visual Search.”

### **AD-HOC REVIEWING (JOURNALS)**

*Attention, Perception & Psychophysics; Canadian Journal of Experimental Psychology; Cerebral Cortex; Frontiers of Perception Science; Gestalt Theory Journal; Journal of Experimental Psychology: General; Journal of Experimental Psychology: Human Perception and Performance; Journal of Experimental Psychology: Learning, Memory & Cognition; Journal of Neuroscience; Journal of Neurophysiology; Journal of Vision; NeuroImage; Perception; PLoS One; PLoS Computational Biology; Psychological Science; Psychonomic Bulletin and Review; Psychophysiology; Visual Cognition; Vision Research; Proceedings of the Cognitive Science Society; European Cognitive Science*

## **AD-HOC REVIEWING (GRANTING AGENCIES)**

*National Science Foundation (NSF); UK SBS*

## **EDITORIAL BOARD**

*Attention, Perception & Psychophysics (2015 -)*

## **DEPARTMENTAL SERVICE**

2015-2016 Faculty Research Liaison, Minerva Schools at KGI  
2010-2011 Coordinator, Visual Attention Lab Seminar Series, Harvard Medical School  
2007-2008 Coordinator, MIT Cog Lunch

## **PROFESSIONAL MEMBERSHIPS**

2003-present Vision Sciences Society  
2009-present Association for Psychological Science  
2006-present Cognitive Sciences Society  
2009 Neuroethics Society  
2013-present Cognitive Neuroscience Society

## **REFERENCES**

Professor Aude Oliva  
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Cambridge, MA 02139  
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[oliva@mit.edu](mailto:oliva@mit.edu)

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University of Illinois, Department of Psychology  
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