

Talia Konkle

tkonkle@gmail.com
web.mit.edu/~tkonkle/www/
(617) 286-6291

Education

- 2011-present Post-doctoral Researcher, Center for Mind/Brain Sciences
University of Trento, Italy
Advisor: Professor Alfonso Caramazza
- 2005-2011 Ph.D. in Brain and Cognitive Sciences
Massachusetts Institute of Technology
Advisor: Professor Aude Oliva
- 2000-2004 B.A. Applied Mathematics, B.A. Cognitive Science
University of California, Berkeley
Advisor: Professor Richard Ivry

Research Interests

- How is visual knowledge organized across the cortex and what is the role of experience in where these regions are located? Are these knowledge representations inherently visual or multi-sensory?
- What is the capacity of our visual memory systems and what factors support detailed visual memory?
- How does incoming visual information become integrated into existing knowledge over time? How are early and high-level visual areas modified with each presented stimulus?

Grants, Fellowships, and Honors

- 2011 Concepts Actions Objects Symposium Travel Grant Award
- 2010 Walle Nauta Award for Continuing Dedication to Teaching
- 2009 International Multisensory Research Forum Graduate Student Fellowship
- 2008 MIT Health Science and Technology Catalyst fund (50 fMRI hours)
- 2008 European Conference for Visual Perception Travel Award
- 2008 Angus MacDonald Award for Excellence in Undergraduate Teaching
- 2006 - 2009 National Defense Science and Engineering Graduate Fellowship
- 2006 - 2010 National Science Foundation Scholarship
- 2007 Cognitive Science Society Travel Award
- 2005 Singleton Presidential Scholar, Massachusetts Institute of Technology
- 2004 Cognitive Science Departmental Citation, University of California Berkeley
- 2000-2004 National Merit Scholar
- 2000-2004 Robert C. Byrd Scholarship
- 2003, 2004 Biology Fellows Program, University of California Berkeley

Publications

Konkle, T., & Oliva, A. (*in press*) A real-world size organization of object responses in occipito-temporal cortex. *Neuron*.

Konkle, T., & Oliva, A. (*in press*) A Familiar Size Stroop Effect: Real-world size is an automatic property of object representation. *Journal of Experimental Psychology: Human Perception & Performance*.

- Konkle, T., & Oliva, A. (2011). Canonical visual size for real-world objects. *Journal of Experimental Psychology: Human Perception & Performance*, 37(1):23-37.
- Brady, T. F., Konkle, T. & Alvarez, G. A. (2011). A review of visual memory capacity: Beyond individual items and toward structured representations. *Journal of Vision*, 11(5):4, 1-4.
- Konkle, T., Brady, T., F., Alvarez, G. A., & Oliva, A. (2010). Scene memory is more detailed than you think: the role of categories in visual long-term memory. *Psychological Science*, 21(11),1551-6.
- Bedny, M., Konkle, T., Pelphrey, K., Saxe, R., & Pascual-Leone, A. (2010). Sensitive period for a vision-dominated response in human MT/MST. *Current Biology*, 20(21),1900-6.
- Konkle, T., Brady, T. F., Alvarez, G. A., & Oliva, A. (2010). Conceptual distinctiveness supports detailed visual long-term memory. *Journal of Experimental Psychology: General*. Vol 139(3), 558-578.
- Brady, T. F., Konkle, T., & Alvarez, G. A. (2009). Compression in visual short-term memory: using statistical regularities to form more efficient memory representations. *Journal of Experimental Psychology: General*. 138(4), 487-502.
- Konkle, T. & Moore, C. I. (2009). What can crossmodal aftereffects reveal about neural representation and dynamics? *Communicative and Integrative Biology*, 2(6), 479-481.
- Konkle, T., Wang, Q., Hayward, V., & Moore, C. I. (2009). Motion Aftereffects Transfer Between Touch and Vision. *Current Biology*, 19, 745-750.
- Brady, T. F., Konkle, T., Oliva, A., and Alvarez, G. (2009). Detecting changes in real-world objects: The relationship between visual long-term memory and change blindness. *Communicative and Integrative Biology* 2:1, 1-3.
- Brady, T. F., Konkle, T., Alvarez, G. A. and Oliva, A. (2008). Visual long-term memory has a massive storage capacity for object details. *Proceedings of the National Academy of Sciences, USA*, 105 (38), 14325-14329.
- Carter, O. L., Konkle, T., Wang, Q., Hayward, V., & Moore, C. I. (2008). Tactile Rivalry Demonstrated with an Ambiguous Apparent-Motion Quartet. *Current Biology*. doi:10.1016/j.cub.2008.06.027.
- Konkle, T., & Oliva, A. (2007). Normative representation of objects: Evidence for an ecological bias in perception and memory. In D. S. McNamara & J. G. Trafton (Eds.), *Proceedings of the 29th Annual Cognitive Science Society*, (pp. 407-413), Austin, TX: Cognitive Science Society.
- Alvarez, G. A., Konkle, T., & Oliva, A. (2007). Searching in Dynamic Displays: Effects of configural predictability and spatio-temporal continuity. *Journal of Vision*, 7(14):12, 1-12.
- Verstynen, T. D., Spencer, R., Stinear, C. M., Konkle, T., Diedrichsen, J., Byblow, W. D., Ivry, R. B. (2007). Bilateral Pathways Do Not Predict Mirror Movements: A Case Report. *Neuropsychologia*, 45(4), 844-852.
- Verstynen, T. D., Konkle, T., & Ivry, R. B. (2006). Two types of TMS-induced Movement Variability After Stimulation of the Primary Motor Cortex. *Journal of Neurophysiology*. 96, 1018-1029.

Chapters

- Oliva, A., Park, S., & Konkle, T. (2010). Representing, Perceiving and Remembering the Shape of Visual Space. Computational Vision in Neural and Machine Systems. Cambridge University Press, edited by Laurence R Harris and Michael Jenkin.

Manuscripts

- Brady, T. F., Konkle, T., Gill, J., Oliva, A., & Alvarez, G. A. (*submitted*) Comparing the fidelity of perception, short-term memory, and long-term memory: Evidence for highly detailed long-term memory representations.
- Tran, T. H. C., Konkle T, Desprez P, Oliva A, Boucart M (*submitted*) Short term visual memory and space representation in age-related macular degeneration.
- Brady, T. F., Konkle, T., Alvarez, G. A., & Oliva, A. (*submitted*) Are real-world objects represented as bound units? Independent forgetting of different object details from visual memory
- Park*, S. J., Konkle*, T., & Oliva, A. (*in preparation*) Neural representation of the size of space and the amount of clutter in a scene.

Conference Presentations

2012

- Konkle, T., & Caramazza, A. (2012). Large-Scale Object Topography In Occipito-Temporal Cortex. Poster presented at the Concepts, Actions, and Objects annual meeting, May 24-27, Rovereto, Italy.
- Konkle, T., & Caramazza, A. (2012). Comparing Animacy and Real-World Size Object Topography In Occipito-Temporal Cortex: a "Coarse MVPA" approach. Talk presented at the annual meeting of the Vision Sciences Society, May 11-16, Naples, FL.
- Cohen, M., Konkle, T., Rhee, J., Nakayama, K., & Alvarez, G. A. (2012). High-level neural similarity predicts perceptual competition during encoding of different object categories. Talk presented at the annual meeting of the Vision Sciences Society, May 11-16, Naples, FL
- Rhee, J., Konkle, T., Brady, T. F., & Alvarez, G. A. (2012). Does memory enhancement training alter perceptual representations? Poster presented at the annual meeting of the Vision Sciences Society, May 11-16, Naples, FL.

2011

- Konkle, T., & Oliva, A. (2011). Big and small objects are represented in a medial to lateral organization across ventral visual cortex. Talk presented at the Concepts, Actions, and Objects annual meeting, May 19-22, Rovereto, Italy.
- Konkle, T., & Oliva, A. (2011). Organizing visual object knowledge by real-world size in ventral visual cortex. Poster presented at the annual meeting of the Vision Sciences Society, May 6-12, Naples, FL.
- Brady, T. F., Konkle, T., Alvarez, G. A., & Oliva, A. (2011). Are real-world objects represented as bound units? Independent decay of object details from short-term to long-term memory. Poster presented at the annual meeting of the Vision Sciences Society, May 6-12, Naples, FL.
- Cohen, M. A., Nakayama, K., Konkle, T., & Alvarez, G. A. (2011). Competition for working memory resources depends on the kind of stimuli being remembered. Poster presented at the annual meeting of the Vision Sciences Society, May 6-12, Naples, FL.
- Park, S., Konkle, T., & Oliva, A. (2011). Neural coding of the size of space and the amount of clutter in a scene. Talk presented at the annual meeting of the Vision Sciences Society, May 6-12, Naples, FL.
- Rhee, G., Konkle, T., Brady, T. F., & Alvarez, G. A. (2011). Learning statistical regularities can speed the encoding of information into working memory. Poster presented at the annual meeting of the Vision Sciences Society, May 6-12, Naples, FL.

2010

- Konkle, T., & Oliva, A. (2010). Examining how objects of different real-world sizes are represented in ventral visual cortex. Talk presented at the annual meeting of the Society for Neuroscience, Nov 8-13, San Diego, CA.
- Park, S., Konkle, T., & Oliva, A. (2010). Neural representation of the size of space and the amount of clutter in a scene. Talk presented at the annual meeting of the Society for Neuroscience, Nov 8-13, San Diego, CA.
- Konkle, T., & Oliva, A. (2010). Examining how the real-world size of objects is represented in ventral visual cortex. Talk presented at the annual meeting of the Vision Sciences Society, May 7-12, Naples, FL.
- Park, S., Konkle, T., & Oliva, A. (2010). Neural Coding of Scene Volume: the Size of Space Represented across the PPA and LOC. Poster presented at the annual meeting of the Vision Sciences Society, May 7-12, Naples, FL.

2009

- Konkle, T., & Oliva, A. (2009). Reconstructive Memory Biases for Object and Scene Views. Poster presented at the 50th annual meeting of the *Psychonomic Society*, November 19-21, Boston, MA.
- Oliva, A., Brady, T. F., Konkle, T., Alvarez, G. A., (2009). Remembering thousands of images with high fidelity. Talk presented at the 50th annual meeting of the *Psychonomic Society*, November 19-21, Boston, MA.
- Bedny, M., Konkle, T., Saxe, R., Pascual-Leone, A., (2009). Plasticity in the visual motion system of congenitally and late blind adults. Talk presented at the annual meeting of *the Society for Neuroscience*, October 17-21, Chicago, IL.
- Konkle, T., Wang, Q., Hayward, V., & Moore, C. I. (2009). Motion aftereffects transfer between vision and touch. Talk presented at the annual *International Multisensory Research Forum*, June 29 – July 2, 2009, New York, NY.
- Konkle, T., & Oliva, A. (2009). Canonical visual sizes for real-world objects. Poster presented at the annual meeting of the *Vision Sciences Society*, May 8-13, Naples, FL.
- Alvarez, G. A., Konkle, T., Brady, T. F., Gill, J., & Oliva, A. (2009). Comparing the Fidelity of Perception, Short-term Memory, and Long-term Memory: Evidence for Highly Detailed Long-term Memory Representations. Talk presented at the annual meeting of the *Vision Sciences Society*, May 8-13, Naples, FL.
- Brady, T. F., Konkle, T., & Oliva, A. (2009). Examining object representation via object memory: exemplar and state-level object properties are supported by the same underlying features. Poster to be presented at the annual meeting of the *Vision Sciences Society*, May 8-13, Naples, FL.
- Oliva, A., Konkle, T., Brady, T., F., & Alvarez, G., A. (2009). The high fidelity of scene representation in visual long-term memory. Talk presented at the annual meeting of the *Vision Sciences Society*, May 8-13, Naples, FL.
- Bedny, M., Caramazza, A., Konkle, T., Pascual-Leone, A., Saxe, R. (2009). Effects of Visual Deprivation on Action Verb Representation in the Lateral-Temporal-Cortex: Evidence from congenitally blind adults. Talk presented at the annual meeting of the *Cognitive Neuroscience Society*, March 21-March 24, San Francisco, CA.

2008

- Konkle, T., Bedny, M., Saxe, R., Moore, C. I. (2008). Motion-selective recruitment of MT+ by tactile apparent motion stimuli. Poster presented at the annual meeting of the *Society for Neuroscience*, November 15-19, Washington, D.C.
- Carter, O., Konkle, T., Wang, Q., Hayward, V & Moore, C. (2008). Tactile rivalry demonstrated with ambiguous apparent motion quartet. Poster presented at the annual meeting of the *Society for Neuroscience*, November 15-19, Washington, D.C.
- Brady, T. F., Konkle, T., & Alvarez, G. A. (2008). Efficient Coding in Visual Short-Term Memory: Evidence for an Information-Limited Capacity. In B. C. Love, K. McRae, & V. M. Sloutsky (Eds.), *Proceedings of the 30th Annual Conference of the Cognitive Science Society* (pp. 887-892). Austin, TX: Cognitive Science Society.
- Konkle, T., & Oliva, A. Objects, Big and Small: Evidence for canonical visual size in object representation. Talk presented at the *European Conference for Visual Perception*, August 24-28, Utrecht, Netherlands.
- Konkle, T., Brady, T. F., Alvarez, G. A. and Oliva, A. (2008). Remembering Thousands of Objects with High Fidelity. Poster presented at the Second Annual *Tufts University Conference on Emerging Trends in Behavioral, Affective, Social, and Cognitive Neurosciences*, Medford, MA.
- Brady, T. F., Konkle, T., Alvarez, G. A., & Oliva, A. (2008). Compression in visual short-term memory: Using statistical regularities to form more efficient memory representations. *Poster presented at the annual meeting of the Vision Sciences Society*, May 9-14, Naples, FL.
- Konkle, T., Brady, T. F., Alvarez, G., A., & Oliva, A. (2008). Remembering Thousands of Objects with High Fidelity. Talk presented at the annual meeting of the *Vision Sciences Society*, May 9-14, Naples, FL.

2007

- Konkle, T. A., Wang, Q., Hayward, V., & Moore, C., I. (2007). Visual motion adaptation induces a tactile motion after effect. Talk presented at the annual meeting of the *Society for Neuroscience*, November 3-7, San Diego, CA.
- Carter, O., Konkle, T., Snyder, J., Wang, Q., Hayward, V., Moore, C., & Nakayama, K. (2007). Bi-stable tactile stimulus shows perceptual rivalry exists across the senses. Poster presented at the 8th *International Multisensory Research Forum*, July 5-7, Sydney, Australia.
- Konkle, T., & Oliva, A. (2007). Normative representation of objects and scenes: Evidence from predictable biases in perception and memory. Poster presented at the annual meeting of the *Vision Sciences Society*, May 11-16, Sarasota, FL.

2006

- Konkle, T., McDaniel, E., Greene, M., & Oliva, A. (2006). Constructing depth information in briefly presented scenes. Poster presented at the annual meeting of the *Vision Sciences Society*, May 5-10, Sarasota, FL.
- Oliva, A., Konkle, T., Greene, M., & Torralba, A. (2006). Not all Scene Categories are Created Equal: The role of object and layout diagnosticity in scene gist understanding. Poster presented at the annual meeting of the *Vision Sciences Society*, May 5-10, Sarasota, FL.
- Vul, E., Konkle, T., Love A., Williams, A., & Nieuwenstein, M. (2006). Quantitative prediction errors in RSVP: modeling the time course of suppression during the attentional blink. Poster presented at the annual meeting of the *European Conference of Visual Perception*, August 20-25, St Petersburg, Russia.

Pre 2006

Konkle, T., Marchant, N., Verstynen, T., Diedrichsen, J., & Ivry, R. B. (2005). Selection of action: Can transcranial magnetic stimulation bias hand choice in reaching? Poster presented at the annual meeting of the *Society for Neuroscience*, November 12-16, Washington, D.C.

Konkle, T., Verstynen, T. D., & Ivry, R. B. (2004). Response variability in a rhythmic tapping task during sub- and suprathreshold TMS over motor cortex. Poster presented at the annual meeting of the *Society for Neuroscience*, October 23-27, San Diego, CA.

Verstynen, T. D., Stinear, C. M., Konkle, T., Ivry, R. B., & Byblow, W. (2004). Asymmetries in motor cortex inhibition during bimanual isometric muscle activation. Poster presented at the annual meeting of the *Society for Neuroscience*, October 23-27, San Diego, CA.

Konkle, T., Jiang, N., Zhang, J., Gurel, F., Scheper, C., & Craciun, G. (2004). Image segmentation using neural oscillators. Technical Report No. 26. The Ohio State University: *Mathematical Biosciences Institute Technical Report Series*. Online.

Konkle, T., Verstynen, T. D., Diedrichsen, J., & Ivry, R. B. (2003). Sources of increased timing variability following TMS over motor cortex. Poster presented at the annual meeting of the *Society for Neuroscience*, November 8-12, New Orleans, LA.

Teaching, Guest Lectures & Invited Talks

Guest Lectures

- Visual cognition applied to the visual display of quantitative information.
Information Visualization Course, Harvard University, 21 Feb 2010.
Lab Course in Visual Cognition, MIT, 12 Dec 2008.
- How to give a presentation on scientific research.
Lab Course in Visual Cognition, MIT, 29 Sept 2010
Lab Course in Visual Cognition, MIT, 29 Sept 2009
Research Methods Course, Harvard University, 15 Apr 2009
Lab Course in High Level Cognition, MIT, 8 Feb 2009
Lab Course in High Level Cognition, MIT, 7 Feb 2008
- Introduction to data analysis in excel using pivot tables
Lab Course in High Level Cognition, MIT, 17 Feb 2010.

Invited Talks

- Object Topography in Occipito-Temporal Cortex
Harvard University, Cognition Brain & Behavior Seminar Series, 9 March 2012
- The role of conceptual knowledge in memory capacity and perceptual preferences.
Harvard University, 12 Mar 2009.
- Visual long-term memory has a massive capacity for object details.
Liege, Belgium, 22 Aug 2008.

Teaching Assistantships

- Cognitive Neuroscience, Professor George Alvarez, Fall 2009
- Lab in High-Level Cognition, Professor Rebecca Saxe, Spring 2009

- fMRI of High Level Vision, Professor Nancy Kanwisher, Fall 2007
- Introduction to Psychology, Professor John Gabrieli, Spring 2007

Courses taught for undergraduates during MIT Independent Activities Period

- MatLab for Brain and Cognitive Scientists.
Instructor. 1 week course.
Jan 2007 (2 sessions), Jan 2008 (2 sessions), Jan 2009 (2 sessions)

Courses taught for the SPLASH Educational Studies Program for high school students

- Introduction to Neuroanatomy, Co-instructor, 1 day class,
Fall 2006, 2007, 2008, 2009
<http://hebb.mit.edu/splash/>
- Graphical Excellence, Instructor, 1 day class, Fall 2006
- Marketing, Marriage, and Electrocutation: how the choices you make are not your own, Co-instructor, 1 day class, Fall 2005.

Departmental Service

2009-2010	Cognitive Job Search Committee, Massachusetts Institute of Technology
2007-2009	Chair of Interview Weekend Committee, Massachusetts Institute of Technology
2006-2007	Interview Weekend Committee member, Massachusetts Institute of Technology
2003-2004	Cognitive Science Peer Advising Coordinator, University of California, Berkeley

Peer Review

Ad Hoc Reviewer

Brain Topography, Experimental Psychology, Cerebral Cortex, Cognitive Science Society, European Journal of Neuroscience, iPerception, Journal of Experimental Psychology: Human Perception and Performance, Journal of Motor Behavior, Journal of Vision, Memory & Cognition, Perception, Psychological Science, Psychonomic Bulletin & Review, PlosOne, Frontiers in Perception Science, Visual Cognition

Review Editor

Frontiers in Perception Science