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Education

- 2007-2013 **Ph.D. in Cognitive Science**
Massachusetts Institute of Technology
Thesis title: Visual features for scene recognition and reorientation
Advisor: Dr. Ruth Rosenholtz
- 2004-2007 **B.Sc. (Hons) in Psychology**
University of Edinburgh
Thesis title: Role of low- and high-spatial-frequency information in real-world scene contextual cueing
Advisor: Dr. James Brockmole
- 1999-2003 **B.S. in Engineering & Applied Science**
California Institute of Technology

Employment

- Sept 2016-
present **Post-Doctoral Fellow**
Centre for Vision Research, York University
PI: Dr. James Elder
- June 2013-
July 2016 **Post-Doctoral Fellow**
Visual Attention Lab, Harvard Medical School and Brigham & Women's Hospital
PI: Dr. Jeremy Wolfe
- Feb 2016-
Aug 2016 **Independent contractor**
Digital Cognition Technologies, 210 Bear Hill Rd, Waltham MA
- Spring 2014,
Spring 2015 **Instructor**
Massachusetts Institute of Technology

Grants, Fellowships, & Awards

- 2012 P.E.O. Scholar Award
- 2009-2012 NSF Graduate Fellowship
- 2011 Walle Nauta Award for Continued Dedication to Teaching
- 2010 Angus MacDonald Award for Excellence in Undergraduate Teaching
- 2009 Elsevier/Vision Research Travel Award
- 2008 NSF Graduate Fellowship Honorable Mention

2007 Drever Prize, University of Edinburgh
2007 NSF Graduate Fellowship Honorable Mention

Publications

- Zhang, J., **Ehinger, K. A.**, Wei, H., Zhang, K., & Yang, J. (2017). A novel graph-based optimization framework for salient object detection. *Pattern Recognition*, 64(C), 39-50.
- Ehinger, K. A.** & Rosenholtz, R. (2016). Peripheral information loss predicts human performance on a range of scene-perception tasks relevant for navigation. *Journal of Vision*, 16:13, doi:10/1167/16.2.13.
- Ehinger, K. A.** & Wolfe, J. M. (2016). When is it time to move to the next map? Optimal foraging in guided search. *Attention, Perception & Psychophysics*, 78(7), 2135-2151.
- Ehinger, K. A.**, Allen, K., & Wolfe, J. M. (2016). Change blindness for cast shadows in natural scenes: Even informative shadow changes are missed. *Attention, Perception & Psychophysics*, 78(4), 978-987.
- Xiao, J., **Ehinger, K. A.**, Hays, J., Torralba, A., & Oliva, A. (2016). SUN Database: Exploring a large collection of scene categories. *International Journal of Computer Vision*, 119(1), 3-22.
- Sareen, P., **Ehinger, K. A.**, & Wolfe, J. M. (2016). A Change Detection Database for objects in natural indoor scenes. *Behavior Research Methods*, 48(4), 1343-1348.
- Sareen, P., **Ehinger, K. A.**, & Wolfe, J. M. (2015). Through the looking-glass: Objects in the mirror are less real. *Psychonomic Bulletin & Review*, 22(4), 980-986.
- Zhang, J., **Ehinger, K. A.**, Ding, J., & Yang, J. (2014). A prior-based graph for salient object detection. *Proc. 21st IEEE International Conference on Image Processing (ICIP)*.
- Xiao, J., Hays, J., Russell, B. C, Patterson, G., **Ehinger, K. A.**, Torralba, A., & Oliva, A. (2013). Basic level scene understanding: Categories, attributes and structures. *Frontiers in Psychology*, 4. doi: 10.3389/fpsyg.2013.00506
- Xiao, J., **Ehinger, K. A.**, Oliva, A., & Torralba, A. (2012). Recognizing scene viewpoint using panoramic place representation. *Proceedings of 25th IEEE Conference on Computer Vision and Pattern Recognition*.
- Goujon, A., Brockmole, J. R., & **Ehinger, K. A.** (2012). How visual and semantic information influence learning in familiar contexts. *Journal of Experimental Psychology: Human Perception and Performance*, 38, 1315-1327.
- Rosenholtz, R., Huang, J., & **Ehinger, K. A.** (2012). Rethinking the role of top-down attention in vision: Effects attributable to a lossy representation in peripheral vision. *Frontiers in Consciousness Research*, 3. doi: 10.3389/fpsyg.2012.00013
- Ehinger, K. A.** & Oliva, A. (2011). Canonical views of scenes depend on the shape of the space. In L. Carlson, C. Hölscher, & T. Shipley (Eds.), *Proceedings of the 33rd Annual Conference of the Cognitive Science Society* (pp. 2114-2119). Austin, TX: Cognitive Science Society.

Ehinger, K. A., Xiao, J., Torralba, A., & Oliva, A. (2011). Estimating scene typicality from human ratings and image features. In L. Carlson, C. Hölscher, & T. Shipley (Eds.), *Proceedings of the 33rd Annual Conference of the Cognitive Science Society* (pp. 2562-2567). Austin, TX: Cognitive Science Society.

Ehinger, K. A. & Altschuler, E. L. (2011). What did the early American presidents really look like? Gilbert Stuart portraits as a "Rosetta Stone" to the pre-photography era. *Perception*, 40(1), 91-94.

Xiao, J., Hays, J., **Ehinger, K. A.**, Oliva, A., & Torralba, A. (2010). SUN Database: Large scale scene recognition from abbey to zoo. In *Proc. 23rd IEEE Conference on Computer Vision and Pattern Recognition*, 3485-3492.

Judd, T., **Ehinger, K.**, Durand, F., Torralba, A. (2009). Learning to predict where people look. In *12th IEEE International Conference on Computer Vision*, 2106-2113.

Ehinger, K. A., Hidalgo-Sotelo, B., Torralba, A., & Oliva, A. (2009). Modeling search for people in 900 Scenes: A combined source model of eye guidance. *Visual Cognition*, 17, 945-978.

Ehinger, K. A. & Brockmole, J. R. (2008). The role of color in visual search in real-world scenes: Evidence from contextual cueing. *Perception & Psychophysics*, 70(7), 1366-1378.

Manuscripts

Xu, P., **Ehinger, K. A.**, Zhang, Y., Finkelstein, A., Kulkarni, S. R., & Xiao, J. (2015). TurkerGaze: Crowdsourcing saliency with webcam based eye tracking. arXiv:1504.06755.

Xiao, J., Russell, B. C., Hays, J., **Ehinger, K. A.**, Oliva, A., & Torralba, A. (2012). Basic level scene understanding: From labels to structure and beyond. In *SIGGRAPH Asia 2012 Technical Briefs (SA '12)*, Article 36. ACM: New York, NY.

Conference Presentations

2016

Ehinger, K. A. & Wolfe, J. M. (2016). How is visual search guided by shape? Using features from deep learning to understand preattentive "shape space". Poster presented at Vision Sciences Society annual meeting, May 15, 2016.

Micheletto, R., **Ehinger, K. A.**, & Wolfe, J. M. (2016). Role of simple primitive shapes in complex distractors: Do shared features affect search times? Poster presented at Vision Sciences Society annual meeting, May 15, 2016.

Wolfe, J. M., Aizenman, A., Park, J., & **Ehinger, K. A.** (2016). How did you hide my bunny? Using a genetic algorithm to investigate preattentive processing of shape in visual search. Talk presented at Vision Sciences Society annual meeting, May 15, 2016.

2015

Mullins, R. S., **Ehinger, K. A.**, Aizenmann, A. M., Weiss, C. A., Wolfe, J. M., Fouse, A., & Pfautz, S. (2015). Geographic analysis in context: A visual search task comparing zooming metaphors. Paper session at North American Cartographic Information Society (NACIS) annual meeting, Oct. 15, 2015.

Aizenman, A. M., Thompson, M. B., **Ehinger, K. A.**, & Wolfe, J. M. (2014). Visual search through a 3D volume: Studying novices in order to help radiologists. Talk presented at Vision Sciences Society annual meeting, May 19, 2015.

Ehinger, K. A. & Wolfe, J. M. (2015). Foraging in satellite imagery: When is it time to move to the next map? Talk presented at Vision Sciences Society annual meeting, May 18, 2015.

Josephs, E., Cain, M. S., Hidalgo-Sotelo, B., Cook, G., Chang, N., **Ehinger, K. A.**, Oliva, A., Wolfe, J. M. (2015). When is stereopsis useful in visual search? Poster presented at Vision Sciences Society annual meeting, May 20, 2015.

Wolfe, J. M., Cain, M. S., **Ehinger, K. A.**, & Drew, T. (2014). Guided Search 5.0: Meeting the challenge of hybrid search and multiple-target foraging. Talk presented at Vision Sciences Society annual meeting, May 19, 2015.

Xiao, J., Xu, P., Zhang, Y., **Ehinger, K. A.**, Finkelstein, A., & Kulkarni, S. (2015). What can we learn from eye tracking data on 20,000 images? Poster presented at Vision Sciences Society annual meeting, May 18, 2015.

2014

Ehinger, K. A. & Wolfe, J. M. (2014). Foraging and navigating in a virtual orchard: Which tree do you visit next? Talk presented at Vision Sciences Society annual meeting, May 19, 2014.

Sareen, P., **Ehinger, K. A.**, & Wolfe, J. M. (2014). Through the looking glass: Are objects in mirrors really objects? Poster presented at Vision Sciences Society annual meeting, May 17, 2014.

2013

Ehinger, K. A. & Rosenholtz, R. (2013). Texture statistics predict human performance on a range of scene-perception tasks. Poster presented at the Vision Sciences Society annual meeting, May 14, 2013.

2012

Ehinger, K. A. & Rosenholtz, R. (2012). Quantifying boundary extension in scenes. Poster presented at Vision Sciences Society annual meeting, May 15, 2012.

2011

Ehinger, K. A. & Oliva, A. (2011). What determines the canonical view of a scene? Talk presented at Vision Sciences Society annual meeting, May 8, 2011.

Ehinger, K. A. & Oliva, A. (2011). Canonical views of scenes. Poster presented at the MIT Scene Understanding Symposium, Jan 28, 2011.

2010

Ehinger, K. A., Haggerty, K. M., & Oliva, A. (2010). Canonical views of scenes depend on the shape of the space. Poster presented at Object Perception, Attention, & Memory, Nov, 18, 2010.

Ehinger, K. A., Torralba, A., & Oliva, A. (2010). Building a taxonomy of visual scenes: Typicality ratings and hierarchical classification. Poster presented at Vision Sciences Society annual meeting, May 9, 2010.

Hays, J., Xiao, J., **Ehinger, K. A.**, Oliva, A., & Torralba, A. (2010). Scene categorization and detection: the power of global features. Talk presented at Vision Sciences Society annual meeting, May 8, 2010.

2009

Ehinger, K. A., Hidalgo-Sotelo, B., Torralba, A., & Oliva, A. (2009). Modeling search for people in 900 Scenes: The roles of saliency, target features, and scene context. Talk presented at Vision Sciences Society annual meeting, May 10, 2009.

Ehinger, K. A., Hidalgo-Sotelo, B., Torralba, A., & Oliva, A. (2009). Modeling search for people in 900 Scenes: A combined source model of eye guidance. Poster presented at the MIT Scene Understanding Symposium, Jan 30, 2009.

Oliva, A., **Ehinger, K. A.**, Hidalgo-Sotelo, B., & Torralba, A. (2009). Context rules supreme in visual search through real-world scenes. Talk presented at the MIT Scene Understanding Symposium, Jan 30, 2009.

2008

Ehinger, K. A. (2008). Modeling sources of visual attention guidance in real-world search. Talk presented at MIT Cognitive Lunch, Oct 21, 2008.

Ehinger, K. A. & Oliva, A. (2008). Characterizing the shape and texture of natural objects using Active Appearance Models. Poster presented at the Vision Sciences Society annual meeting, May 11, 2008.

Ehinger, K. A. & Brockmole, J. R. (2008). The role of color in real-world scene contextual cueing. Poster presented at the MIT Scene Understanding Symposium, Feb 1, 2008.

Teaching

Courses Taught

Computational Perception (9.77/9.777), MIT: spring 2014, 2015 (co-instructor with Edward Adelson)

Guest Lectures

Applications in Vision Science (BIOL 5149 / KAHS 5149 / PSYC 6228), York University: Oct 26, 2016
“Deep belief nets and object recognition”

Teaching Assistantships

Computational Perception (9.77/9.777), MIT: spring 2012 (instructors: Edward Adelson & Aude Oliva)

Laboratory in Visual Cognition (9.63), MIT: fall 2009-2011 (instructor: Aude Oliva)

Computational Perception (9.77), MIT: fall 2009 (instructor: Aude Oliva)

Introduction to Psychology (9.00), MIT: spring 2009 (instructor: John Gabrieli)

