

**Benjamin Wolfe, Ph.D.**  
Curriculum Vitae

Massachusetts Institute of Technology  
Department of Brain and Cognitive Sciences  
Computer Science and Artificial Intelligence Lab (CSAIL)  
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Cambridge, MA, 02139  
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**EDUCATION**

- 2015            Ph.D., Psychology  
University of California at Berkeley  
Advisor: Professor David Whitney; Cognition, Brain and Behavior Program  
Dissertation: Before the Eye Moves: Remapping, Visual Stability and Perisaccadic Perception
- 2008            B.A., Psychology  
Boston University

**PROFESSIONAL APPOINTMENTS**

- 2016 -            Postdoctoral Associate, Rosenholtz Lab  
Department of Brain and Cognitive Sciences  
Massachusetts Institute of Technology  
Advisor: Dr. Ruth Rosenholtz
- 2015 – 2016    Postdoctoral Associate, AgeLab  
Center for Transportation Logistics  
Massachusetts Institute of Technology  
Advisors: Dr. Bryan Reimer and Bruce Mehler

**RESEARCH INTERESTS**

Visual perception; peripheral vision, scene perception, eye movements, visual attention, driving

**GRANTS AND FELLOWSHIPS**

- 2019            TRI-CSAIL Joint Research Program Grant  
“Driver Perception and the Car-to-Driver Handoff”  
PI: Rosenholtz, supporting Benjamin Wolfe  
*\$230,000 in total support for 2019*
- 2016 – 2018    TRI-CSAIL Joint Research Program Grant  
“Reducing the Pain Points in Driving”  
PI: Rosenholtz; supporting Benjamin Wolfe  
*\$300,000 per year in direct support to Rosenholtz Lab*
- 2017            Transport Research Laboratories (via CSAIL Alliances)  
“Critical Event Response Thresholds”  
*\$20,000 in direct support (gift award)*

- 2015 Google Faculty Research Award  
 “The role of eye movements in successful navigation during smartphone use”  
 PI: Rosenholtz  
 \$67,000 in direct support (gift award)
- 2011 – 2014 Graduate Research Fellowship to Benjamin Wolfe  
 National Science Foundation  
 \$120,000 in direct support and tuition coverage
- 2005 – 2008 Undergraduate Research Opportunities Program (UROP)  
 Boston University; 8 Competitive Renewals  
 \$20,000 in direct support over three years

## AWARDS AND HONORS

- 2018 Transportation Review Board; Operations Section Young Author Award  
 2015, 2014 UC Berkeley Research Impact Initiative (Open Access Publication)  
 2015 UC Berkeley Psychology Department Travel Award  
 2014, 2013 UC Berkeley Graduate Division Travel Award

## MANUSCRIPTS IN REVISION

**Wolfe, B. A.**, Sawyer, B., Rosenholtz, R., Towards a Mechanistic Understanding of Situation Awareness in Driving. *Human Factors*.

## PUBLISHED PAPERS AND ARTICLES

- (2019) **Wolfe, B. A.**, Seppelt, B., Mehler, B., Reimer, B., Rosenholtz, R., Rapid Detection and Localization of Road Hazards. *Journal of Experimental Psychology: General*.
- (2019) **Wolfe, B. A.**, Sawyer, B., Kosovicheva, A., Reimer, B., Rosenholtz, R., Detection of Brake Lights While Distracted: Separating Peripheral Vision from Cognitive Load. *Attention, Perception and Psychophysics*.
- (2019) **Wolfe, B. A.**, Fridman, L., Kosovicheva, A., Seppelt, B., Mehler, B., Reimer, B., Rosenholtz, R., Predicting Road Events from Brief Views of Driving Video. *Journal of Vision*. 19(5), 8-8
- (2018) **Wolfe, B.A.**, Rosenholtz, R., Peripheral Vision, Models Of. *Encyclopedia of Cognitive Neuroscience*.
- (2018) Dobres, J., **Wolfe, B.**, Chahine, N., Reimer, B. The Effects of Visual Crowding, Text Size, and Positional Uncertainty on Text Legibility at a Glance. *Applied Ergonomics*. 70, 240-246
- (2018) Chen, Z., Kosovicheva, A., **Wolfe, B.**, Cavanagh, P., Gorea, A., Whitney, D. Unifying Visual Space Across the Right and Left Hemifields. *Psychological Science*. 9(3), 356-369
- (2017) **Wolfe, B.A.**, Dobres, J., Rosenholtz, R., & Reimer, B. More Than the Useful Field: Considering Peripheral Vision in Driving. *Applied Ergonomics*. 65, 316-325
- (2017) **Wolfe, B.**, Fridman, L., Kosovicheva, A., Seppelt, B., Mehler, B., Reimer, B. Perceiving The Roadway In The Blink Of An Eye – Rapid Perception Of The Road Environment And Prediction Of Events. *Conference Proceedings, Driving Assessment 2017*.
- (2017) Dobres, J., Chrysler, S. T., **Wolfe, B.**, Chahine, N., & Reimer, B. Signs of the Times: An Empirical Assessment of the Legibility of Highway Gothic and Clearview Signage Fonts. In *Transportation Research*

Board 96th Annual Meeting (No. 17-04920). Won Operations Section Young Author Award from Transportation Review Board.

(2016) **Wolfe, B.**, Dobres, J., Kosovicheva, A., Rosenholtz, R., Reimer, B., Age-related differences in the legibility of degraded text. *Cognitive Research: Principles and Implications*. 1(1), 22

(2015) **Wolfe, B. A.**, Whitney, D. Saccadic remapping of object-selective information. *Attention, Perception and Psychophysics*. 77:7, 2260-2269.

(2015) **Wolfe, B. A.**, Kosovicheva, A. A., Leib, A. Y., Wood, K. & Whitney, D. Foveal input is not required for ensemble perception of emotional faces. *Journal of Vision*. 15(4), 11-11.

(2014) Kosovicheva, A. A., **Wolfe, B. A.**, & Whitney, D. Visual motion shifts saccade targets. *Attention, Perception, & Psychophysics*, 1-11.

(2014) **Wolfe, B. A.**, Whitney, D. Facilitating recognition of crowded faces with presaccadic attention. *Frontiers in Human Neuroscience*. 8:103

(2010) **Wolfe, B.A.**, Rushmore, R.J., Valero-Cabre, A. Coping With Spatial Attention in Real Space: A Low-Cost Portable Testing System for the Investigation of Visuo-Spatial Processing in the Human Brain. *Journal of Neuroscience Methods*. 187(2):190-8.

(2010) Swisher, J.D., Gatenby, J.C., Gore, J.C., **Wolfe, B.A.**, Moon, C.H., Kim, S.G., Tong, F.. Multiscale pattern analysis of orientation-selective activity in the primary visual cortex. *Journal of Neuroscience*. 30(20):6811-2.

## MANUSCRIPTS IN PREPARATION

Sawyer, B., **Wolfe, B. A.**, Dobres, J., The Science of Style: Design Guidelines for Legible Typography in Conventional and Augmented Reality (AR) Interface

Sawyer, B., **Wolfe, B. A.**, Dobres, J., Chahine, N., Mehler, B., Reimer, B., Better Bakery Windows: Toward Glanceable, Legible Typography over Complex Backgrounds.

Kosovicheva, A., **Wolfe, B. A.**, & Whitney, D., Position representations for action lead perception: Evidence from saccades to drifting Gabor targets

## TEACHING EXPERIENCE

Spring 2015 Mind, Brain and Behavior, Graduate Student Instructor  
Departments: Psychology; Molecular and Cellular Biology  
Average student evaluation: 5.97 (department mean, 5.92 / 7)

Spring 2011 Sensation and Perception, Graduate Student Instructor  
Department: Psychology  
Average student evaluation: 6.33 (department mean, 6.27 / 7)

Fall 2010 Drugs and the Brain; Graduate Student Instructor  
Departments: Psychology and Molecular/Cell Biology  
Average student evaluation: 6.09 (department mean, 6.32 / 7)

**MENTORING EXPERIENCE**

- 2017            Sohan Subhash, High School Student in Rosenholtz Lab
- 2017            Yrvine Thelusma, High School Student in Rosenholtz Lab
- 2015            Martin A Lopez, MIT, Aeronautics and Astronautics Undergraduate  
Completed Senior Project in AgeLab
- 2015            Riley Ledezma, MIT, Aeronautics and Astronautics Undergraduate  
Completed Senior Project in AgeLab
- 2013-2015      Katherine Wood, Undergraduate Student, UC Berkeley  
Completed Honors Thesis in Psychology
- 2013            Omead Kohanteb, Undergraduate Student, UC Berkeley
- 2012            Claire Jeon, Undergraduate Student, UC Berkeley

**SERVICE**

- 2018 – Present      Vision Sciences Society Demo Night Committee Member
- 2017 – Present      Member, Ad-Hoc Working Group on NIH Clinical Trials Policy for Basic Science

**ADDITIONAL TRAINING**

- 2008 - 2010      Research Associate, Tong Lab  
Department of Psychology, Vanderbilt University  
Supervisor: Dr. Frank Tong
- 2005 – 2008      Research Assistant, Cerebral Dynamics Laboratory  
Department of Anatomy and Neurobiology, Boston University Medical School  
Advisors: Dr. R. Jarrett Rushmore and Dr. Antoni Valero-Cabré

**REVIEWING EXPERIENCE**

- Journals:          Attention, Perception and Psychophysics; Vision Research; Journal of Experimental Psychology: General; iPerception; Visual Cognition, Cognitive Science; Experimental Psychology; Cognitive Research, Principles and Implications; Human Factors; Ergonomics; Applied Ergonomics; International Journal of Occupational Safety and Ergonomics; Traffic, Injury and Prevention
- Conferences:      IEEE Visualization and Graphics Technical Committee (VGTC), Driving Assessment, IEEE Information Visualization (InfoVis), NIPS, AutomotiveUI
- Agencies:          US-Israel Binational Science Foundation

**COMMUNITY OUTREACH AND PRESENTATIONS**

- 2010 – 2015 Whitney Lab K-12 Outreach Program
- 2014 Vision Sciences Society Demo Night Presenter, “Strobwheel”
- 2012 Vision Sciences Society Demo Night Presenter, “An Aftereffect Based on Texture Element Ratios”

### GUEST LECTURES AND INVITED TALKS

- (2019) Reconsidering the Mechanisms of Situation Awareness in Driving  
Toyota Research Institute, May 13, 2019
- (2019) Using Driving to Understand Vision  
New England College of Optometry, April 16, 2019
- (2018) Information Acquisition for Driving  
Schepens Eye Research Institute, August 29, 2018
- (2018) Visual Attention in Driving  
Tufts University, Department of Psychology, January 25, 2018

### SELECTED CONFERENCE PRESENTATIONS

- (2019) **Wolfe, B.A.**, Rosenholtz, R. Why Uber Drivers Scare You: Detecting Road Hazards With Peripheral Vision. Vision Sciences Society Annual Meeting May 17-22, 2019.
- (2018) **Wolfe, B.A.**, Rosenholtz, R. Was that a moose on the road? Gist-like perception of emerging driving hazards. Vision Sciences Society Annual Meeting, May 18-23, 2018.
- (2017) **Wolfe, B.A.**, Fridman, L., Kosovicheva, A.A., Reimer, B. & Rosenholtz, R. Seeing the road in the blink of an eye - rapid perception of the driver’s visual environment. Vision Sciences Society Annual Meeting, May 19–24, 2017.
- (2017) Rosenholtz, R., **Wolfe, B.A.**, Sawyer, B., Kosovicheva, A.A. & Reimer, B. Perceptual and attentional factors in detection of driving-relevant visual events. Vision Sciences Society Annual Meeting, May 19–24, 2017.
- (2016) **Wolfe, B.A.**, Dobres, J., Kosovicheva, A.A., Rosenholtz, R., Reimer, B. Reduction in Legibility with Degradation in Older and Younger Observers. Vision Sciences Society Annual Meeting, May 13–18, 2016.
- (2015) **Wolfe, B.A.**, Whitney, D. Object-selective processing of remapped information. Vision Sciences Society Annual Meeting. May 15–20, 2015.
- (2015) Kosovicheva, A. A., **Wolfe, B.A.**, Cavanagh, P., Gorea, A., Whitney, D. Dynamic recalibration of perceived space across the visual hemifields. Vision Sciences Society Annual Meeting. May 15–20, 2015.
- (2015) Wood, K., **Wolfe, B. A.**, Kosovicheva, A. A., Whitney, D. Speeded breakthrough of faces in interocular suppression requires configural information. Vision Sciences Society Annual Meeting. May 15–20, 2015.
- (2014) **Wolfe, B.A.**, Whitney, D. Presaccadic Induction and Spatial Tuning of the Face Aftereffect. Vision Sciences Society Annual Meeting. May 16–21, 2014.

- (2014) Wood, K., **Wolfe, B. A.**, Kosovicheva, A. A., Leib, A. Y., Whitney, D. Foveal input is not required for ensemble coding of emotional faces. Vision Sciences Society Annual Meeting. May 16–21, 2014.
- (2013) **Wolfe, B. A.**, Kosovicheva, A. A., Leib, A. Y., Whitney, D. Beyond fixation: Ensemble coding and eye movements. Vision Sciences Society Annual Meeting. May 10–15, 2013.
- (2012) Kosovicheva, A. A., **Wolfe, B.A.**, Whitney, D. Effects of motion-induced mislocalizations on saccade landing position. Vision Sciences Society Annual Meeting. May 11–16, 2012.
- (2012) **Wolfe, B.A.**, Whitney, D. Presaccadic foveal priming diminishes crowding. Vision Sciences Society Annual Meeting. May 11–16, 2012.
- (2011) **Wolfe, B.A.**, Whitney, D. Egocentric but not allocentric perceptual distortions from saccadic adaptation. Vision Sciences Society Annual Meeting. May 6–11, 2011.
- (2008) **Wolfe, B.A.**, Rowe, C.K., Rushmore, R.J., Valero-Cabre, A. Spatial distribution and temporal dynamics of visuo-spatial attention capabilities in human subjects as revealed by transcranial magnetic stimulation (TMS) on parietal systems and associated networks. Twelfth International Conference on Cognitive and Neural Systems. May 14-17, 2008.

## PROFESSIONAL MEMBERSHIPS

- 2009 – Present          Vision Sciences Society  
 2014 – Present          Psychonomics Society

## REFERENCES

### **Ruth Rosenholtz, Ph.D.**

Principal Research Scientist  
 Department of Brain and Cognitive Sciences  
 Massachusetts Institute of Technology  
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### **Dennis Levi, OD, Ph.D.**

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### **Frank Tong, Ph.D.**

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Vanderbilt University  
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