

# EMILY JUNIPER WARD

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<http://emilyward.org>

## POSITIONS

- 2022–present Senior Research Scientist, Health Economics & Outcomes Research  
SPRING HEALTH
- 2018–2022 Assistant Professor, Department of Psychology  
UNIVERSITY OF WISCONSIN - MADISON
- 2017–18 Visiting Assistant Professor, Department of Psychology  
UNIVERSITY OF WISCONSIN - MADISON
- 2016–17 Visiting Researcher, Donders Institute  
Radboud University, Nijmegen, Netherlands

## EDUCATION

- 2016 Yale University Ph.D. in Psychology  
Advisors: Marvin CHUN & Brian SCHOLL
- 2013 Yale University M.S., M.Phil. in Psychology
- 2007 Franklin & Marshall College B.A. in Neuroscience

## HONORS & AWARDS

- 2022 Fund Consciousness Workshop Fellowship (Washington D.C.)
- 2019 Honored Instructor Award, UNIVERSITY HOUSING ACADEMIC INITIATIVES
- 2015 Brains, Minds, & Machines Workshop Fellowship (Marine Biology Laboratory)
- 2014 Elsevier/Vision Research Travel Award (VSS Student Travel Award)
- 2011 Rovereto CAOs Travel Grant
- 2010–13 National Science Foundation Graduate Research Fellowship
- 2007 Rawnsley Science Prize for top undergraduate in science, FRANKLIN & MARSHALL

## PUBLICATIONS

Barnas, A. J. & Ward, E. J. (2022). Metacognitive judgements of change detection predict change blindness. *Cognition*, 227, 105208. [PDF](#)[SI](#)

Lim, C., Ward, E. J., Vickery, T., & Johnson, M. M. (2019). Not-so-working memory: Drift in fMRI pattern representations during maintenance predicts errors in a visual working memory task. *Journal of Cognitive Neuroscience*, 1-15. [PDF](#)

Ward, E. J., Isik, L., & Chun, M. M. (2018). General transformations of object representations in human visual cortex. *Journal of Neuroscience*, 38, 8526-8537. [PDF](#) [*Faculty Opinions Recommended Article* ([Link](#))]

Ward, E. J. (2018). Downgraded Phenomenology: How conscious overflow lost its richness. *Phil. Trans. R. Soc. B*, 373:20170355. [PDF](#)

Ward, E. J., Bear, A., & Scholl, B. J. (2016). Can you perceive ensembles without perceiving individuals?: The role of statistical perception in determining whether awareness overflows access. *Cognition*, 152, 78-86. [PDF](#)

Chekroud, A. M.\*, Ward, E. J.\*, Rosenberg, M. D., & Holmes, A. J. (2016). Patterns in the human brain mosaic discriminate males from females. *Proceedings of the National Academy of Sciences*, pii: 201523888. [PDF](#)

Ward, E. J. & Chun, M. M. (2016). Neural discriminability of object features predicts perceptual organization. *Psychological Science*, 27, 3-11. [PDF](#)

Ward, E. J. & Scholl, B. J. (2015). Stochastic or systematic?: Seemingly random perceptual switching in bistable events triggered by transient unconscious cues. *Journal of Experimental Psychology: Human Perception & Performance*, 41, 929-939. [PDF](#)

Ward, E. J. & Scholl, B. J. (2015). Inattention blindness reflects limitations on perception, not memory: Evidence from repeated failures of awareness. *Psychonomic Bulletin & Review*, 22, 722-727. [PDF](#) . [Featured in *News from the field* by Burnham (2015)]

Ward, E. J., Chun, M. M., & Kuhl, B. A. (2013). Repetition suppression and multi-voxel pattern similarity differentially track implicit and explicit visual memory. *Journal of Neuroscience*, 33, 14749-14757. [PDF](#) . [F1000 Recommended Article ([Review](#)|[Text](#))]

Lupyan, G. & Ward, E. J. (2013). Language can boost otherwise unseen objects into visual awareness. *Proceedings of the National Academy of Sciences*, 110, 14196-14201. [PDF](#)|[SI](#) . [Featured in *The Guardian* and *National Geographic*]

Ward, E. J., MacEvoy, S. P. & Epstein, R. A. (2010). Eye-centered encoding of visual space in scene-selective regions. *Journal of Vision*, 10, 1-12. [PDF](#)

Epstein, R. A. & Ward, E. J. (2010). How reliable are visual context effects in the parahippocampal place area? *Cerebral Cortex*, 20, 294-303. [PDF](#)

### CONFERENCE PAPERS

Ward, E. J. (2019). Exploring perceptual illusions in Deep Neural Networks. *Conference on Cognitive Computational Neuroscience*. Preprint: <https://doi.org/10.1101/687905>.

### MANUSCRIPTS UNDER REVIEW AND IN PREPARATION

Ji, M., Ward, E. J., & Green, C. S. (in prep). Visual perception of multiple instantiations of the chasing intention

Ji, M., Ward, E. J., & Green, C. S. (in prep). Active controlling of agents vs. passive viewing of chasing events

Suresh, S. & Ward, E. J. (in prep). Visual ensemble representations in Deep Neural Networks trained for natural object recognition.

Colón, Y. I. & Ward, E. J. (in prep). To Each Their Own: Measuring Familiarity for Face Images.

### CONFERENCE PRESENTATIONS

Suresh, S. & Ward, E. J. (2022, May). Visual memory for causal and coincidental events. Poster to be presented at *Vision Science Society*, St. Pete's Beach, FL.

Colón, Y. I. & Ward, E. J. (2022, May). Forgetting a face: Attribute amnesia for familiar identities. Poster to be presented at *Vision Science Society*, St. Pete's Beach, FL.

Ji, M., Ward, E. J., & Green, C. S. (2022, May). Metacognitive understanding of visual motion cues to intentionality. Poster to be presented at *Vision Science Society*, St. Pete's Beach, FL.

Suresh, S. & Ward, E. J. (2021, May). Visual ensemble representations in Deep Neural Networks trained for natural object recognition. Talk presented at *Vision Science Society*, Virtual

Colón, Y. I. & Ward, E. J. (2021, May). To Each Their Own: Measuring Familiarity for Face Images. Talk presented at *Vision Science Society*, Virtual

Barnas, A. J. & Ward, E. J. (2021, May). Meta-cognitive judgements of change detection predict change blindness. Poster presented at *Vision Science Society*, Virtual

Ji, M., Ward, E. J., & Green, C. S. (2021, May). Learning to identify visual signals of intentionality. Poster presented at *Vision Science Society*, Virtual

Suresh, S., & Ward, E. J. (2020, October). Visual ensemble representations emerge in Deep Neural Networks trained for object recognition. Talk presented at *neuromatch 3.0*, Virtual.

Ward, E. J. (2019, September). Exploring perceptual illusions in deep neural networks. Poster presented at *Conference on Cognitive Computational Neuroscience*, Berlin, Germany.

Ward, E. J. (2019, August). Exploring perceptual illusions in deep neural networks. Talk presented at *eLucid8*, Madison, WI.

Ward, E. J. (2019, May). Exploring perceptual illusions in deep neural networks. Poster presented at *Vision Science Society*, St. Pete's Beach, FL.

Ward, E. J. & de Lange, F. P. (2018, May). The neural dynamics of category-based attention. Talk presented at *Vision Science Society*, St. Pete's Beach, FL.

Ward, E. J. & de Lange, F. P. (2017, November). The neural dynamics of category-based attention. Talk presented at *Society for Neuroscience*, Washington, DC.

Ward, E. J., Isik, L., & Chun, M. M. (2017, May). General transformations of object representations in human visual cortex. Poster presented at *the Concepts, Actions, and Objects annual meeting*, Rovereto, Italy.

Ward, E. J., Bear, A. & Scholl, B. J. (2016, June). Can you perceive ensembles without perceiving individuals?: The role of statistical perception in determining whether awareness overflows access. Talk presented at the *42nd Meeting of the Society for Philosophy and Psychology*, Austin, TX.

Ward, E. J. & Chun, M. M. (2016, May). Neural evidence for visual routines: Transforming object representations across physical changes. Poster presented at *Vision Science Society*, St. Pete's Beach, FL.

Ward, E. J. & Scholl, B. J. (2015, May). Inattention blindness reflects limitations on perception, not memory: Evidence from repeated failures of awareness. Talk presented at *Vision Science Society*, St. Pete's Beach, FL.

Ward, E. J. & Chun, M. M. (2014, November). Neural discriminability of object features predicts perceptual organization. Talk presented at *Society for Neuroscience*, Washington, DC.

Ward, E. J. & Chun, M. M. (2014, May). Neural coding of perceptual features is enhanced when they are task relevant. Talk presented at *Vision Science Society*, St. Pete's Beach, FL. [Abstract published in *Journal of Vision*, 14(10): 22-22.]

O'Connell, T., Ward, E. J. & Chun, M. M. (2014, May). Temporal consistency of multi-voxel patterns for repeated scenes. Poster presented at *Vision Science Society*, St. Pete's Beach, FL. [Abstract published in *Journal of Vision*, 14(10): 1078-1078.]

Ward, E. J. & Chun, M. M. (2013, November). Timescale limitations of perceptual expectation on fMRI repetition suppression. Poster presented at *Society for Neuroscience*, San Diego, CA.

Ward, E. J. & Scholl, B. J. (2013, May). Making the switch: Transient unconscious cues can disambiguate bistable images. Talk presented at *Vision Science Society*, Naples, FL. [Abstract published in *Journal of Vision*, 13(9): 1107-1107.]

Ward, E. J., Kuhl, B. A., & Chun, M. M. (2012, May). Multi-voxel pattern similarity predicts subsequent visual memory. Talk presented at *Vision Science Society*, Naples, FL. [Abstract published in *Journal of Vision*, 12(9): 123-1123.]

Ward, E. J., Kuhl, B. A., & Chun, M. M. (2011, November). fMRI adaptation & multi-voxel pattern similarity reveal dissociable effects of face repetition. Talk presented at *Society for Neuroscience*, Washington, D.C.

Ward, E. J., & Lupyan, G. (2011, May). Linguistic Penetration of Suppressed Visual Representations. Talk presented at the *Concepts, Actions, and Objects* annual meeting, Rovereto, Italy.

Ward, E. J., & Lupyan, G. (2011, May). Linguistic Penetration of Suppressed Visual Representations. Poster presented at *Vision Sciences Society*, Naples, FL. [Abstract published in *Journal of Vision*, 11(11): 322-322.]

Epstein, R., Smith, M., & Ward, E. (2009, May). What is the function of the parahippocampal place area? Testing the context hypothesis. Poster presented at *Vision Sciences Society*, Naples, FL. [Abstract published in *Journal of Vision*, 9(8): 963-963.]

Epstein, R. A. & Ward, E. J. (2008, November). How reliable are "context" effects in the parahippocampal place area? Poster presented at *Society for Neuroscience*, Washington DC.

Ward, E. J., Parker, W. E., Feiler, A. M., & Epstein, R. A. (2008, May). Adaptation for individual places but not for place categories in scene-selective cortical regions. Poster presented at *Vision Sciences Society*, Naples, FL. [Abstract published in *Journal of Vision*, 8(6): 333-333.]

Ward, E. J., Hattori, Y., Fujita, K., & Thompson, R. K. R. (2007, March). Effects of Two Dimensional Noise and Feature Configuration on the Recognition of Faces in Capuchins (*Cebus apella*). Poster presented at *Conference on Comparative Cognition*, Melbourne, FL.

Leis, J., Ward, E. J., & Thompson, R. K. R. (2006, March). Does What a Monkey Receive Affect His Partner's Expectation of Reward? Some Answers from Capuchin Monkeys (*Cebus apella*). Poster presented at *Conference on Comparative Cognition*, Melbourne, FL.

Ward, E. J., Eaves, E. & Fried, J. (2005, April). Effects of an Antidepressant Drug on Estrogen-Treated Rats in the Forced Swim Test. Talk presented at *National Conferences for Undergraduate Research*, Lexington, VA.

## INVITED CONFERENCE AND WORKSHOP PRESENTATIONS

2022 Challenges for the Metacognitive Foundation of Consciousness Symposium. ANNUAL MEETING OF THE *Cognitive Neuroscience Society*, SAN FRANCISCO, CA.

## INVITED COLLOQUIA

- 2022 Cognitive Colloquium, UNIVERSITY OF CALIFORNIA SANTA CRUZ
- 2021 Different Minds Collaborative, UNIVERSITY OF VICTORIA
- 2020 Visual Cognition Colloquium, NORTH DAKOTA STATE UNIVERSITY
- 2020 Attention/Perception Series, UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN
- 2020 Biomedical Engineering Seminar, MEDICAL COLLEGE OF WISCONSIN
- 2019 Department Cognitive Workshop, UNIVERSITY OF CHICAGO
- 2017 Consciousness & Cognitive Access Workshop, AARHUS UNIVERSITY, DENMARK
- 2016 Jean Nicod Colloquium, ECOLE NORMALE SUPÉRIEURE, PARIS
- 2016 Department Talk, Psychology, UNIVERSITY OF WISCONSIN - MADISON
- 2012 Cognitive & Perception Brownbag, UNIVERSITY OF WISCONSIN - MADISON

## INVITED PANELS

- 2020 Cog Neuro of Consciousness Recruitment VIRTUAL; ORGANIZED BY THE HAKWAN LAU LAB, UCLA
- 2019 FoVea: Navigating a Life in Science as a Woman. VISION SCIENCES SOCIETY, ST. PETE'S BEACH, FL

## SCIENTIFIC SERVICE

- 2021– Awards Committee for *Cognitive Science Society* annual meeting
- 2020– Consulting Editor for *Journal of Cognitive Neuroscience*
- 2019– Special Issue Editor for *Consciousness and Cognition*
- 2019– Association for the Scientific Study of Consciousness Scientific Program Committee

## PUBLIC LECTURES

- 2019 Wednesday Nite @ The Lab, MADISON, WISCONSIN
- 2019 Leigh Yawkey Woodson Art Museum Public Lecture, WAUSAU, WISCONSIN
- 2019 Arrowhead High School Psychology Club, HARTLAND, WISCONSIN

## MEDIA COVERAGE

- 2019 PBS - *Seeing & Not Seeing: Investigating Visual Awareness*

## AD HOC REVIEWING: CONFERENCES, FUNDING AGENCIES, PUBLISHERS, ETC

*Einstein Foundation*  
*Icelandic Research Fund*  
*National Science Foundation*  
*Conference on Cognitive Computational Neuroscience*  
*SAGE Publishing*

## AD HOC REVIEWING: JOURNALS

*Acta Psychologica*  
*Attention, Perception, & Psychophysics*  
*Behavioral & Brain Sciences*  
*Canadian Journal of Experimental Psychology*  
*Cognition*  
*Cognitive Development*  
*Consciousness and Cognition*  
*Cortex*  
*eLife*  
*Experimental Brain Research*  
*Frontiers in Psychology*  
*JEP: General*  
*JEP: Human Perception and Performance*  
*JEP: Learning, Memory, and Cognition*  
*Journal of Neuroscience*  
*Journal of Cognitive Neuroscience*

*Mind & Language*  
*Neurobiology of Learning and Memory*  
*NeuroImage*  
*Neuroscience of Consciousness*  
*New England Journal of Medicine*  
*Philosophical Psychology*  
*Philosophical Transactions B*  
*PLOS ONE*  
*Psychonomic Bulletin & Review*  
*Quarterly Journal of Experimental Psychology*  
*Review of Philosophy and Psychology*  
*Royal Society Open Science*  
*Synthese*  
*Visual Cognition*

## FUNDING

- 2021–27 NIH R01 (Role: Co-I)  
 "Defining and Optimizing Critical Interpretation Skills in Screening Mammography to Improve Cancer Detection" (\$3,131,100.00)
- 2021 McPherson Eye Research Institute (Role: Co-I)  
 "Walsh Graduate Student Support Initiative" (for Mohan Ji) (\$12,000)
- 2021–23 James S. McDonnell Foundation (Role: Co-PI)  
 "Faces in the Wild: Understanding Real-World Communication of Emotions" (\$250,000)
- 2021–22 Wisconsin Alumni Research Fund (Role: PI)  
 "Failures of awareness in humans and machines" (\$43,892)
- 2021–22 UW-Madison School of Veterinary Medicine Companion Animal Fund (Role: Co-PI)  
 "Development and validation of behavioral visual acuity and contrast sensitivity tests in dogs" (\$8,000)
- 2019–20 Wisconsin Alumni Research Fund (Role: PI)  
 "Benefiting from failures: The cognitive consequences of failures of awareness" (\$47,090)

## MENTORING

### Post-doctoral Fellows

- 2020–21 Adam Barnas (AFTER UW: CURRENTLY A POST-DOC AT UFL)

### Graduate Students

- 2021– Siddharth Suresh  
 2020– Y. Ivette Colón  
 2019– Mohan Ji (CO-ADVISED WITH C. SHAWN GREEN)

## PHD COMMITTEES

- 2020– Clint Jensen, DEPARTMENT OF PSYCHOLOGY  
 2020– Bikalpa Ghimire, NEUROSCIENCE TRAINING PROGRAM  
 2018–20 Aaron Cochrane, DEPARTMENT OF PSYCHOLOGY  
 2019–20 Chelsea Andrews, DEPARTMENT OF PSYCHOLOGY  
 2017 Anke Marit Albers, DONDERS INSTITUTE

## FIRST-YEAR PROJECT/PRELIM COMMITTEES

- 2020– Kesong Cao, DEPARTMENT OF PSYCHOLOGY  
 2020– Michael Payton, DEPARTMENT OF PSYCHOLOGY  
 2020– Olivia Zhao, DEPARTMENT OF PSYCHOLOGY  
 2020– Jiangang Shan, DEPARTMENT OF PSYCHOLOGY  
 2019– Kushin Mukherjee, DEPARTMENT OF PSYCHOLOGY  
 2019– Melissa Schoenlein, DEPARTMENT OF PSYCHOLOGY  
 2019– Duncan Cleveland, DEPARTMENT OF PSYCHOLOGY

## TEACHING EXPERIENCE

- 2018–21 Basic Statistics for Psychology, UNIVERSITY OF WISCONSIN - MADISON  
 2021 Exploring Research in Psychology, UNIVERSITY OF WISCONSIN - MADISON  
 2019 Visual Cognition Graduate Seminar, UNIVERSITY OF WISCONSIN - MADISON  
 2014 The Human Brain, YALE UNIVERSITY, TEACHING FELLOW  
 2012 Introduction to Cognitive Science, YALE UNIVERSITY, TEACHING FELLOW  
 2012 Sex, Evolution, and Human Nature, YALE UNIVERSITY, TEACHING FELLOW  
 2011 Methods in Human Neuroscience, YALE UNIVERSITY, TEACHING FELLOW  
 2007 Neuroscience, FRANKLIN & MARSHALL COLLEGE, TEACHING ASSISTANT  
 2006 Knowing Animal Minds, FRANKLIN & MARSHALL COLLEGE, TEACHING ASSISTANT

## RELATED EXPERIENCE

- 2007–10 Research Specialist, Epstein Lab, CENTER FOR COGNITIVE NEUROSCIENCE, UPENN  
 2006–07 Senior Independent Honors Research, FRANKLIN & MARSHALL COLLEGE  
 2006 Primate Cognition Lab Research Associate, PSYCHOLOGY, KYOTO UNIVERSITY  
 2005 Hackman Scholars Research, FRANKLIN & MARSHALL COLLEGE

## UNIVERSITY & DEPARTMENTAL SERVICE

### *Leadership*

- 2020–22 Cognition & Cognitive Neuroscience Area Group Chair, DEPARTMENT OF PSYCHOLOGY

2020 Chair of Workgroup on Recruitment of Black Faculty, DEPARTMENT OF PSYCHOLOGY

### *Committees*

2021–22 NTP Award Committee, NEUROSCIENCE TRAINING PROGRAM  
 2020–22 Graduate Committee, DEPARTMENT OF PSYCHOLOGY  
 2018–22 Eye Research Institute Outreach Committee, MCPHERESON EYE INSTITUTE  
 2018–22 Behavioral Data Science Masters Program Committee, DEPARTMENT OF PSYCHOLOGY  
 2018–20 Web & Social Media Committee, DEPARTMENT OF PSYCHOLOGY

### UNIVERSITY & DEPARTMENTAL COLLOQUIA, LECTURES, & PANELS

*Speaker* First Year Graduate Seminar (2022)  
*Speaker* HAMLET Seminar (2020)  
*Speaker* Women in Scientific Education and Research (2020)  
*Speaker* LUCID Seminar (2020)  
*Speaker* Cognition & Cog. Neuroscience Brownbag: How to present research virtually (2020)  
*Speaker* First Year Graduate Seminar (2020)  
*Speaker* Lunch & Learn talk series (2019)  
*Panelist* First-year Presentation Preparation (2019)  
*Lecturer* 'Effective Talks', Senior Thesis Honors Seminar (2019)  
*Speaker* PREP faculty talk series (2019)  
*Speaker* HAMLET Seminar (2018)  
*Speaker* First Year Graduate Seminar (2018)  
*Speaker* Biol. of Brain & Behav. Brownbag (2018)  
*Lecturer* 'Attention', Perception (2018)  
*Speaker* Cognition & Cog. Neuroscience Brownbag (2018)  
*Speaker* First Year Graduate Seminar (2017)  
*Speaker* Current Works in Cognitive Psychology (YALE, 2015)  
*Speaker* Magnetic Resonance Research Center fMRI Seminar (YALE, 2014)  
*Speaker* Current Works in Behavior, Genetics, and Neuroscience, (YALE, 2013)