

# Heather Dee Lucas

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## EDUCATION

- 2012      Ph.D. in Psychology, Northwestern University  
            Brain, Behavior, and Cognition Program  
            Advisor: Ken A. Paller
- 2009      M.S. in Psychology, Northwestern University  
            Brain, Behavior, and Cognition Program  
            Advisor: Ken A. Paller
- 2005      B.A., Duke University  
            Majors: Psychology & English  
            Minor: Computer Science

## ACADEMIC EMPLOYMENT

- 2017-present    Assistant Professor  
                    Department of Psychology  
                    Louisiana State University
- 2015-2017      Postdoctoral Research Associate  
                    Beckman Institute for Advanced Science and Technology  
                    University of Illinois at Urbana-Champaign  
                    Advisor: Neal J. Cohen
- 2012-2015      Beckman Institute Postdoctoral Fellow  
                    Beckman Institute for Advanced Science and Technology  
                    University of Illinois at Urbana-Champaign  
                    Independent Postdoctoral Appointment

## ACADEMIC AND PROFESSIONAL HONORS, AWARDS, AND FELLOWSHIPS

- 2012-2015 Beckman Institute for Advanced Science and Technology  
Postdoctoral Fellowship Award
- 2010-2012 Training Grant Recipient, Northwestern Training Program in the  
Neuroscience of Human Cognition (T32 NS047987)
- 2010 Scholarship to attend the UC-Davis ERP Boot Camp
- 2008 National Science Foundation Graduate Research Fellowship  
Honorable Mention
- 2007 National Science Foundation Graduate Research Fellowship  
Honorable Mention
- 2006-2007 Cognitive Science Graduate Research Fellowship, Northwestern  
University

## GRANT ACTIVITY

- Louisiana Board of Regents, RCS 2019  
*Neural dynamics of the interplay between memory and information  
sampling across the adult lifespan*  
Role: Principal Investigator  
Total Costs: \$184,497  
Status: currently under review
- Louisiana State University, HSS Instructional Impact Grant 2018  
*Brain Science Speaker Series*  
Role: Co-investigator  
Principal Investigator: Dr. Melissa Beck (LSU)  
Total Costs: \$18,727  
Status: in progress
- Louisiana State University, Manship Summer Research Grant 2018  
*A causal role of the hippocampus in conceptual combination*  
Total costs: \$5000  
Status: completed

## PUBLICATIONS

**Lucas, H.D.**, Creery, J.D., Hu, X., & Paller, K.A. (in press). Grappling with implicit social bias: A perspective from memory research. *Neuroscience*.

- Lucas, H. D.**, Duff, M. C., & Cohen, N. J. (2019). The hippocampus promotes effective saccadic information gathering in humans. *Journal of Cognitive Neuroscience*, 31, 186-201.
- Horecka, K. M., Dulas, M. R., Schwarb, H., **Lucas, H. D.**, Duff, M., & Cohen, N. J. (2018). Reconstructing relational information. *Hippocampus*, 28, 164–177.
- Rubin, R.D., Schwarb, H., **Lucas, H.D.**, Dulas, M.R., & Cohen, N. J. (2017). Dynamic hippocampal and prefrontal contributions to memory processes and representations blur the boundaries of traditional cognitive domains. *Brain Sciences*, 7, 82.
- Lucas, H.D.**, Hubbard, R.J., & Federmeier, K.D. (2017). Flexible conceptual combination: Electrophysiological correlates and consequences for associative memory. *Psychophysiology*, 54, 833-847.
- Lucas, H.D.**, Monti, J.M., McAuley, E., Watson, P.D., Kramer, A.F., & Cohen, N.J. (2016). Relational memory and self-efficacy measures reveal distinct profiles of subjective memory concerns in older adults. *Neuropsychology*, 30, 568-578.
- Xiao, X., **Lucas, H. D.**, Paller, K. A., Ding, J. H., & Guo, C. Y. (2014). Retrieval Intention Modulates the Effects of Directed Forgetting Instructions on Recollection. *PloS One*, 9, e104701.
- Lucas, H.D.**, & Paller, K.A. (2013). Manipulating letter fluency for words alters electrophysiological correlates of recognition memory. *NeuroImage*, 83, 849-861.
- Paller, K.A., **Lucas, H.D.**, & Voss, J.L. (2012). Assuming too much from 'familiar' brain potentials. *Trends in Cognitive Sciences*, 6, 313-315.
- Lucas, H.D.**, Taylor, J.R., Henson, R.N. & Paller, K.A. (2012). Many roads lead to recognition: Electrophysiological correlates of familiarity derived from short-term masked repetition priming. *Neuropsychologia*, 50, 3041-3052.
- Voss, J.L., **Lucas, H.D.**, & Paller, K.A. (2012). More than a feeling: Pervasive influences of memory without awareness of retrieval. *Cognitive Neuroscience*, 3, 193-207.
- \*\*\* *With nine commentaries and our reply to the commentaries:*  
**Lucas, H.D.**, Paller, K.A., & Voss, J.L. (2012). On the pervasive influences of implicit memory. *Cognitive Neuroscience*, 3, 219-226.
- Lucas, H.D.**, Chiao, J.Y. & Paller, K.A. (2011). Why some faces won't be remembered: Brain potentials illuminate successful versus unsuccessful encoding for same-race and other-race faces. *Frontiers in Human Neuroscience*, 5, doi: 10.3389/fnhum.2011.00020.

**Lucas, H.D.**, Voss, J.L., & Paller, K.A. (2010). Familiarity or conceptual priming: Good question! Comment on Stenberg, Hellman, Johansson, and Rosen. *Journal of Cognitive Neuroscience*, 22, 615-617.

Voss, J.L., **Lucas, H.D.**, & Paller, K.A. (2010). Conceptual priming and familiarity: Two different expressions of memory during recognition testing with distinct neurophysiological correlates. *Journal of Cognitive Neuroscience*, 22, 2638-2651.

## **FORTHCOMING MANUSCRIPTS**

Le, T.P., **Lucas, H.D.**, Schwartz, E.K., Mitchell, K.R., & Cohen, A.S. (in preparation). Frontal alpha asymmetry in schizotypy.

**Lucas, H.D.**, Gupta, R., Hubbard, R.J., & Federmeier, K.D. (in preparation). Is conceptual combination an equally effective encoding strategy for younger and older adults?

**Lucas, H.D.**, Daugherty, A.M., McAuley, E., Kramer, A.F., & Cohen, N.J. (in preparation). When passive viewing is not passive: Scanpath entropy as a marker of active visuospatial learning.

## **CONFERENCE PRESENTATIONS**

**Lucas, H.D.**, Goel, M., Federmeier, K.D., Duff, M.C., & Cohen, N.C. (2018, October). Hippocampal amnesia impairs the creative use of language. Slide presented given at the annual ARMADILLO Conference for Cognition and Cognitive Neuroscience, Houston, TX.

**Lucas, H.D.**, Duff, M.C., & Cohen, N.C. (2018, March). Hippocampal contributions to conceptual combination. *Slide presentation given at the annual meeting of the Society for Neuroscience of Creativity, Boston, MA.*

**Lucas, H.D.**, Duff, M.C., & Cohen, N.C. (2018, March). Hippocampal damage impairs creativity in conceptual combination. *Poster presented at the annual meeting of the Cognitive Neuroscience Society, Boston, MA.*

Le, T.P., **Lucas, H.D.**, Mitchell, K.R., Schwartz, E.K., & Cohen, A.S. (2017, September). Frontal Asymmetry in Schizophrenia. *Poster presented at the annual meeting of the Society for Research in Psychopathology, Denver, CO.*

**Lucas, H.D.**, Duff, M.C., Cohen, N.C. (2017, March). The hippocampus promotes effective saccadic information-gathering in humans. *Poster presented at*

*the annual meeting of the Cognitive Neuroscience Society, San Francisco, CA.*

*\*\*\* selected for additional presentation as a Data Blitz talk*

- Lucas, H.D.**, Gupta, R.S., Hubbard, R.J., & Federmeier, K.D. (2016, April). An ERP study of adult age differences in the use of self-directed conceptual combination to construct unitized memory representations. *Poster presented at the annual meeting of the Cognitive Neuroscience Society, New York, NY.*
- Lucas, H.D.**, Watson, P.D., Monti, J.M., McAuley, E., Kramer, A.F., & Cohen, N.J. (2015, October). Scanpath entropy at study predicts subsequent spatial reconstruction accuracy. *Poster presented at the annual meeting of the Society for Neuroscience, Chicago, IL.*
- Lucas, H.D.**, Watson, P.D., Monti, J.M., McAuley, E., Kramer, A.F., & Cohen, N.J. (2015, March). Subjective memory complaints in older adults are associated with relational memory errors in spatial reconstruction. *Poster presented at the annual meeting of the Cognitive Neuroscience Society, San Francisco, CA.*
- Lucas, H.D.**, Hubbard, R.J., Abusager, K.A., & Federmeier, K.D. (2014, November). An ERP investigation of the formation of unitized memory representations of arbitrary word pairs. *Poster presented at the annual meeting of the Society for Neuroscience, Washington DC.*
- Lucas, H.D.**, & Paller, K.A. (2012, April). Familiarity memory is multiply determined: Evidence from electrophysiological analyses of letter fluency. *Poster presented at the annual meeting of the Cognitive Neuroscience Society, Chicago, IL.*
- Lucas, H.D.**, & Paller, K.A. (2011, April). Many processes lead to recognition: Electrophysiological correlates of familiarity derived from short-term masked repetition. *Slide presentation given at the annual meeting of the Cognitive Neuroscience Society, San Francisco, CA.*
- Lucas, H.D.**, Taylor, J.R., Henson, R.N.A., & Paller, K.A. (2010, April). Neural correlates of word repetition, processing fluency, and recognition memory. *Poster presented at the annual meeting of the Cognitive Neuroscience Society, Montreal, Canada.*
- Morrison, R.G., **Lucas, H.D.**, Florczak, S.M., James, M., Wingo, J.M., & Paller, K.A. (2010, April). Brain potentials reflect changes in memory with age. *Poster presented at the annual meeting of the Cognitive Neuroscience Society, Montreal, Canada.*
- Lucas, H.D.**, Chiao, J.Y., & Paller, K.A. (2009, October). Electrophysiological correlates of objective and subjective encoding success for same- and other-race faces. *Poster presented at the annual meeting of the Society for Neuroscience, Chicago, IL.*

**Lucas, H.D.**, Chiao, J.Y., & Paller, K.A. (2009, March). Neural correlates of face memory as a function of race-based attention and categorization. *Poster presented at the annual meeting of the Cognitive Neuroscience Society, San Francisco, CA.*

**Lucas, H.D.**, Voss, J.L., & Paller, K.A. (2007, June). Characterizing neural correlates of familiarity and conceptual priming. *Poster presented at the annual meeting of the Organization for Human Brain Mapping, Chicago, IL.*

**Lucas, H.D.**, & Schmajuk, N.A. (2004, November). Applications of a neural network model to serial-order discrimination. *Poster presented at the annual Triangle Undergraduate Research Symposium, Raleigh, NC.*

## **INVITED ADDRESSES**

- 2019 Tulane University Department of Psychology Colloquium  
Title: *When passive study is not passive: Interactions between saccadic exploration and memory formation*
- 2016 Flash Talk Speaker, Society for Psychophysiological Research  
Title: *Neural measures of flexible conceptual combination and its consequences for associative memory*
- 2015 Beckman Institute Director's Seminar  
Title: *The monitoring and strategic control of memory representations in younger and older adults*
- 2015 Beckman Institute Language Processing Brown Bag  
Title: *Compositional language, aging, and the strategic control of memory representations*
- 2014 University of Illinois Integrative Immunology and Behavior Seminar  
Title: *Cognitive and psychosocial correlates of subjective memory concerns in older adults: Implications for Alzheimer's disease prevention*
- 2012 University of Illinois Department of Psychology Cognitive Brown Bag  
Title: *Deconstructing recognition memory: Brain potentials reveal contributions of fluency to familiarity experiences*
- 2011 Northwestern University Cognitive Brain Mapping Group  
Title: *Many processes lead to recognition: Electrophysiological correlates of familiarity derived from short-term masked repetition*

## TEACHING EXPERIENCE

**Cognition (PSYC 3030, Louisiana State University).** Upper-division Psychology course focused on broad topics in cognition, including attention, perception, memory, language, and decision-making.

Fall 2017	3030-1 (41 students)	Mean Evaluation: 4.6/5
Fall 2017	3030-2 (74 students)	Mean Evaluation: 4.5/5
Spring 2018	3030-1 (48 students)	Mean Evaluation: 4.7/5
Fall 2018	3030-1 (60 students)	Mean Evaluation: 4.7/5
Spring 2019	3030-2 (40 students)	course in progress

**Methodology and Research Design (PSYC 7117, Louisiana State University).** Graduate course covering a range of advanced topics related to the scientific approach to Psychological research questions.

Spring 2018	7117-1 (8 students)	Mean Evaluation: 4.6/5
Spring 2019	7117-1 (21 students)	course in progress

**Cognitive Electrophysiology (PSYC 7938, Louisiana State University).** Graduate seminar in on the theory and practice of using recordings of electrical activity in the brain to study cognition and behavior, focusing on the event-related potential (ERP) method. Students gain substantial hands-on experience collecting, analyzing, and interpreting ERP data.

Fall 2018	7938-1 (13 students)	Mean Evaluation: 4.5/5
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## Master's Committees

Taylor Fedechko, Louisiana State University      2017 - present

**PSYC 2999/4999 (Louisiana State University).** Undergraduate "research experience" courses with standard A-F grading.

Collean Hebert	(2999, 2018-present)
Blake Roussel	(2999, spring 2018)
Rebecca Wallace	(4999, 2018-present)
Stan West	(2999, 2018-present)

## Doctoral Students Supervised

Brianna Cairney	2018-present
Felicia Chaisson	2018-present

## Undergraduate Honors Theses Supervised

Rebecca Wallace, Louisiana State University, 2018 – present  
*The effects of threat-evoked anxiety on visuospatial memory*

Mahima Goel, University of Illinois Urbana-Champaign, 2016-2017  
*The role of the hippocampus in conceptual combination*

Resh Gupta, University of Illinois Urbana-Champaign, 2014-2015  
*The effects of unitization on associative memory in younger and older adults*

\*\*Winner of the Michael Coles Cognitive Neuroscience Division undergraduate thesis award

### **Teaching Assistantships (Northwestern University, 2007-2012)**

Senior Honors Seminar	(300 level, two terms)
Research Methods	(200 level, one term)
Introduction to Psychology	(100 level, four terms)
Psychopathology	(300 level, one term)
Developmental Psychology	(200 level, one term)

### **AD HOC GRANT REVIEWING**

2012            NSF, Perception, Action, and Cognition Panel

### **AD HOC JOURNAL REVIEWING**

Acta Psychologica  
Aging, Neuropsychology, and Cognition  
Brain Research  
Cerebral Cortex  
Cognitive, Affective, and Behavioral Neuroscience  
Consciousness & Cognition  
Developmental Science  
Experimental Brain Research  
Hippocampus  
International Journal of Psychophysiology  
Journal of Cognitive Neuroscience  
Journal of Experimental Psychology: Learning, Memory, and Cognition  
Learning & Memory  
Memory & Cognition  
NeuroImage  
Neuropsychologia  
PLOS One  
Psychophysiology  
Social, Cognitive, and Affective Neuroscience



## PROFESSIONAL SERVICE AND OUTREACH

- 2019 Panelist for LSU MIND's Women in Neuroscience: A Film Screening & Panel Discussion
- 2018 – **Member of the Committee for Diversity in Psychology**
- 2017 – **LSU MIND Executive Committee Member.** This is a committee to develop an Interdisciplinary Neuroscience Institute at LSU. It is a collaborative effort between the Department of Psychology and the Department of Communication Sciences and Disorders.
- 2013-2014 Organized and facilitated the Beckman Institute Graduate Student Seminar series.
- 2008-2012 **Teaching Consultant for Northwestern's Searle Center for Teaching Excellence.** Position involved visiting classrooms to gather anonymous feedback from students regarding course instruction and providing instructors with suggestions based on students' feedback.
- 2009-2010 **Graduate Teaching Workshop Facilitator,** Northwestern University Searle Center for Teaching Excellence
- 2009 workshop: "Teaching Majors and Non-majors"  
2010 workshop: "Facilitating Classroom Discussion"
- 2009 Volunteer judge for McDade Elementary School Science Fair, Chicago IL
- 2008 **Teaching Assistant Fellow,** Northwestern University Searle Center for Teaching Excellence. Designed and facilitated two workshops for first-time TAs in Psychology and Linguistics as part of the annual New TA Conference

## PREDOCTORAL RESEARCH POSITIONS

- 2005-2006 Laboratory Manager, Developmental Cognitive Neuroscience Laboratory  
PI: Kevin Pelphrey, PhD, Duke University Psychology Department
- 2004-2005 Research Assistant, Computational Neuroscience Laboratory  
PI: Nestor Schmajuk, PhD, Duke University Psychology Department
- 2004-2005 Research Assistant, Infant Cognition Center  
PI: Elizabeth Brannon, PhD, Duke University Psychology Department
- 2002-2003 Research Assistant, With Walt Whitman in Camden Digital Edition  
Editor: Matt Cohen, PhD, Duke University English Department