

University of California, Davis  
Center for Mind and Brain  
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**Education**

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2024 Ph.D. Psychology (Cognitive Neuroscience & Perception group)  
University of California, Davis Advisor: Dr. Joy Geng  
*Dissertation: Object Attention in Scene Perception and Memory*

2015 – 2016 M.Sc Cognitive Neuroscience, University of the Basque Country

2010 – 2015 B.A. Neuroscience, Bennington College

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**Funding and Awards**

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*Fellowships*

2023 – 2024 University of California President’s Dissertation Year Fellowship (\$53,000)

2020 – 2023 National Defense Science and Engineering Fellowship (\$180,000)

2016 – 2018 National Institutes of Health Intramural Research Training Award (\$80,000)

2011 – 2015 Bennington College Brockway Faculty Scholarship (\$120,000)

*Awards*

2023 Early Career Scientist Travel Grant, National Eye Institute

2023 Outstanding Mentor Award, UC Davis Psychology

2021 Diverse Mentoring Award, UC Davis Psychology

2021 Travel Award, UC Davis Graduate Student Association

2021 Best Talk Award (tied for 2<sup>nd</sup> place), UC Davis Psychology

2020 Best Talk Award (tied for 1<sup>st</sup> place), UC Davis Psychology

2020 Most Creative Methodology, UC Davis Psychology

2019 Travel Award, UC Davis Graduate Student Association

2019 Professional Development Travel Award, UC Davis Psychology

2018 NeuroFest Poster Award (3<sup>rd</sup> place), UC Davis Neuroscience

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**Publications****\*joint first-author**

1. **Hall, E.H.**, Duarte, S., & Geng, J.J. (*in prep*). Visual memories are biased towards an optimal viewing distance.
2. **Hall, E.H.**,\* Forloines, M.R.,\* Henderson, J.M., & Geng, J.J. (*under review, Visual Cognition*). Eye gaze during route learning in a virtual task.
3. **Hall, E. H.**, & Geng, J. J. (2024). Object-based attention during scene perception elicits boundary contraction in memory. *Memory & cognition*, 1-13.
4. **Hall, E.H.**,\* Peacock, C.E.,\* & Henderson, J.M. (2023). Objects are prioritized for attention based upon meaning during passive scene viewing. *Psychonomic Bulletin & Review*, 1-13.

5. Richie-Halford, A., Cieslak, M., Ai, L., [et al, including **Hall, E.H.**] (2022). An analysis-ready and quality controlled resource for pediatric brain white-matter research. *Scientific Data*, 9(1), 616.
6. Loh, Z., **Hall, E.H.**, Cronin, D., Henderson, J.M. (2022). Working memory control predicts fixation duration in scene-viewing. *Psychological Research*. 1-12.
7. **Hall, E.H.**, Bainbridge, W.A., & Baker, C.I. (2021). Highly similar and competing visual scenes lead to diminished memory for details in memory drawings. *Memory*, 30(3), 279-292.
8. Bainbridge, W.A., **Hall, E.H.**, Baker, C.I. (2020). Distinct representational structure and localization for visual encoding and recall during visual imagery. *Cerebral Cortex*, bhaa329.
9. Cronin, D.A., **Hall, E.H.**, Goold, J., Hayes, T.H., & Henderson, J.H. (2020) Eye movements in real-world scene photographs: General characteristics and effects of viewing task. *Frontiers in Psychology* 10: 2915.
10. Bainbridge, W.A, **Hall, E.H.**, & Baker, C.I. (2019). Highly diagnostic and detailed content of visual memory revealed during free recall of real-world scenes. *Nature Communications*, 10, 5.

## Conference Presentations

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11. **Hall, E.H.** & Geng, J.J. (2023). Object-based Attention in Scene Perception. Psychonomic Society. San Francisco, CA. Talk.
12. **Hall, E.H.**, & Geng, J.J. (2023). Object-based attention during scene perception elicits boundary contraction in memory. Vision Science Society. St. Pete's Beach, FL. Talk.
13. **Hall, E.H.** & Geng, J.J. (2022). Target search leads to tunnel memory for real-world environments. National Defense Science and Engineering conference. Boston, MA. Poster.
14. **Hall, E.H.**, & Geng, J.J. (2021). Thematic object relationships are judged as stronger than taxonomic relationships in a two-alternative forced choice task. Object Perception, visual Attention, and visual Memory. Virtual conference. Poster.
15. Loh, Z., **Hall, E.H.**, Cronin, D.A, & Henderson, J.H. (2021). Assessing the influence of task and working memory capacity on eye-movement characteristics during scene-perception. Western Psychological Association. Virtual conference. Poster.
16. **Hall, E.H.**, & Geng, J.J. (2021). Co-occurrence statistics from vision and language capture thematic relationships between objects. Vision Science Society. Virtual conference. Poster.
17. Bainbridge, W.A., **Hall, E.H.**, & Baker, C.I. (2019). Differences in the neural representations of visual content between encoding and free recall across the brain. Society for Neuroscience. Chicago, IL. Poster.
18. Bainbridge, W.A., **Hall, E.H.**, & Baker, C.I. (2019). Comparing the categorical structure of perceived and recalled images in visual cortex and hippocampus. Vision Sciences Society. St. Pete Beach, FL. Poster.
19. **Hall, E.H.**, Bainbridge, W.A., & Baker, C.I. (2019). Investigating visual free recall of highly similar and competing scene stimuli. Vision Sciences Society. St. Pete Beach, FL. Poster.
20. **Hall, E.H.**, Bainbridge, W.A., & Baker, C.I. (2019). Creating false memories: Investigating visual recall of multiple exemplars in a single category. Cognitive Neuroscience Society. San Francisco, CA. Poster.
21. Bainbridge, W.A., **Hall, E.H.**, & Baker, C.I. (2018). Comparing the neural correlates of visual encoding and free recall. Organization for Human Brain Mapping. Singapore. Poster.

22. **Hall, E.H.**, Bainbridge, W.A., & Baker, C.I. (2018). Comparing memory based on visual recall, visual recognition, and verbal recall. Vision Sciences Society. St. Pete Beach, FL. Poster.
23. Bainbridge, W.A., **Hall, E.H.**, & Baker, C.I. (2018). Visual recall memory contains highly detailed and precise object and spatial information. Vision Sciences Society. St. Pete's Beach, FL. Talk.
24. Bainbridge, W.A., **Hall, E.H.**, & Baker, C.I. (2018). Visual free recall of real-world scenes reveals high capacity and exquisite detail in memory. Cognitive Neuroscience Society. Boston, MA. Poster.
25. **Hall, E.H.**, Bainbridge, W.A., Baker, C.I. (2018). Investigating neural signatures of visual encoding and recall using 7T fMRI. Cognitive Neuroscience Society, Boston, MA. Poster.
26. **Hall, E. H.**, W. A. Bainbridge, C. I. Baker (2017). Quantifying the resolution and capacity of memory during free recall of real-world visual scenes. Society for Neuroscience, Washington, D.C. Poster.

## Invited Talks

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|------|---|
| 2024 | Carnegie Mellon University, Lab in Multisensory Neuroscience          |
| 2024 | Meta Reality Labs, Display Systems Team                               |
| 2023 | University of California, Merced, Management of Complex Systems Dept. |

## Additional Research Experience

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### Internship

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| 2023 | Alexa Economics & Measurement, Amazon, <i>Data Science Intern</i> , PI: Xin Tang<br>- Developed LSTM to predict customers' Alexa activity over 1 week with 93% accuracy; including extensive feature engineering |
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### Research

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|-------------|---|
| 2018 – 2020 | Visual Cognition Lab, UC Davis, <i>Graduate Research</i> , PI: John Henderson         |
| 2016 – 2018 | Lab of Brain and Cognition, NIMH, <i>Intramural Research Fellow</i> , PI: Chris Baker |
| 2015 – 2016 | Learning and Plasticity Group, BCBL, <i>Masters Research</i> , PI: Doug Davidson      |

### Summer Schools

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| 2024 | Neuromatch Academy, NeuroAI                    |
| 2021 | Neuromatch Academy, Deep Learning              |
| 2020 | Neuromatch Academy, Computational Neuroscience |

### Skills

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| Programming: | Python, SQL, R, MATLAB, C++, Javascript, bash, CSS, HTML            |
| Tools:       | pytorch, OpenCV, sklearn, scipy, numpy, pandas, Unity, psychtoolbox |

## Teaching and Mentoring

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### Courses

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|-------------|--|
| Spring 2020 | Human Memory, <i>Teaching Assistant</i> , UC Davis               |
| Fall 2019   | Perception and Sensation, <i>Teaching Assistant</i> , UC Davis   |
| Spring 2019 | Introduction to Psychology, <i>Teaching Assistant</i> , UC Davis |

### *Mentees*

|      |        |                   |                   |  |
|------|--------|-------------------|-------------------|--|
| 2023 | –      | Akshit Prathipati | Neurophysiology   |  |
| 2023 | –      | Nancy Cao         | Psychology        |  |
| 2022 | – 2023 | Maya Tochimoto    | Cognitive Science |  |
| 2022 | – 2023 | Tiffany Kim       | Disease Biology   | Pursuing <i>JD</i> from <i>USC</i>   |
| 2019 | – 2021 | Ruilin Cai        | Computer Science  | Pursuing <i>MEng</i> from <i>UCLA</i>  |
| 2019 | – 2021 | Zoe Loh           | Cognitive Science | Pursuing <i>PhD</i> from <i>UC Merced</i><br>Provost’s Research Fellow<br>First-author pub. <i>Psych. Research</i> |
| 2019 | – 2020 | Anthony Lagunda   | Psychology        | Provost’s Research Fellow  |

## **Service**

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### **Public Engagement**

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| 2023 |        | Panelist, 1 <sup>st</sup> Annual UCD Cog. Sci. Conference, “Jobs in Cognitive Science”   |
| 2020 | – 2021 | Brown Bag Organizer, UCD Perception, Cognition, and Cognitive Neuroscience<br>- Organized grad talks and outside speakers from <i>Meta Reality Labs</i> ,<br><i>Plos One</i> , <i>University of Chicago</i> , and <i>Columbia University</i> |
| 2019 | – 2022 | Post-publication peer reviewer, University of Melbourne, DARPA Score program<br>- Reviewed credibility of published research articles in business,<br>economics, political science, and psychology   |
| 2017 | – 2018 | STEM Ambassador, DC STEM Network<br>- Speaker at DC public schools and local STEM events about science<br>research opportunities for high school students  |
| 2018 |        | Coordinator, National Museum of Health & Medicine, “Brain Awareness Week”  |
| 2016 |        | Coordinator, Eureka! Science Museum, “Brain Awareness Week”  |

### **Professional Memberships**

Vision Science Society, Females of Vision et al (FoVea), Cognitive Neuroscience Society, Psychonomic Society, Society for Neuroscience, Women in Data Science

### **Ad-Hoc Reviewer**

Memory, Psychological Research, Psychological Review, Psychonomic Bulletin & Review, Memory & Cognition, Quarterly Journal of Experimental Psychology, Journal of Experimental Psychology: General, Heliyon, Scientific Reports

### **Selected Press**

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|-------------------|--|---|
| May 25, 2021      |  | Our memory is even better than experts thought. <i>Scientific American</i> .                                      |
| January 15, 2021  |  | The luck of the draw. <i>Nature Behavioural &amp; Social Sciences: After the Paper</i> .                          |
| February 1, 2019  |  | Remembrance of things (recently) past. <i>Brain Waves: The NIMH Intramural Research Program Newsletter</i> .      |
| January 28, 2019  |  | Drawing out the visual richness of our lives. <i>Nature Behavioural &amp; Social Sciences: Behind the Paper</i> . |
| November 15, 2017 |  | Drawing out visual memories. <i>Society for Neuroscience Meeting Blog</i> .                                       |