

# Lauren H. Williams

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## Education and Training

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<b>Postdoctoral Researcher, UC San Diego</b>	2020 - Present
Advisors: Timothy Brady and Viola Störmer (Dartmouth College)	
<b>Ph.D. in Psychology, University of Utah</b>	2020
Advisor: Trafton Drew	
Concentration: Cognition and Neural Science	
<b>M.S. in Psychology, University of Utah</b>	2018
Advisor: Trafton Drew	
Concentration: Cognition and Neural Science	
<b>B.S. in Psychology, University of Oregon</b>	2014
<i>Cum Laude</i> , Departmental Honors in Psychology	
Honors Thesis Advisor: Ulrich Mayr	

## Grants and Fellowships

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1. Jerome Arndt Grant, Association of Program Directors in Radiology, \$6000 2021  
Learning from Machine Learning: Evaluating how contextual interference impacts the learning of a radiology task in machines and radiologists  
Role: Co-I with Satoshi Minoshima (University of Utah) and Megan Mills (University of Utah)
2. National Science Foundation Graduate Research Fellowship, \$138,000 2017-2020
3. National Science Foundation Graduate Research Opportunities Worldwide award, \$5000 2018
4. Clayton Award for Excellence in Graduate Research – University of Utah, \$4000 2018
5. Prof. Rahamimoff Travel Grant for Young Scientists – Binational Science Foundation, \$4000 2017

## Publications

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1. Williams, L.H., Carrigan, A.J., Mills, M., Auffermann, W.F., Rich, A.N., Drew, T. (2021). Characteristics of expert search behavior in volumetric medical image interpretation. *Journal of Medical Imaging*. 8(4), 041208, doi: 10.1117/1.JMI.8.4.041208.
2. Williams, L.H., Carrigan, A.J., Auffermann, W.F., Mills, M., Rich, A.N., Elmore, J., Drew, T. (2020). The invisible breast cancer: Experience does not protect against inattentive blindness to clinically-relevant findings in radiology. *Psychonomic Bulletin & Review*. <https://doi.org/10.3758/s13423-020-01826-4>
3. Williams, L.H., & Drew, T. (2020). Maintaining rejected distractors in working memory during visual search depends on search stimuli: Evidence from Contralateral Delay Activity. *Attention, Perception, & Psychophysics*. <https://doi.org/10.3758/s13414-020-02127-7>
4. Williams, L.H., & Drew, T. (2019). What do we know about volumetric medical image interpretation?: A review of the basic science and medical image perception literatures. *Cognitive Research: Principles and Implications*. 4(1), 21, doi: 10.1186/s41235-019-0171-6.
5. Drew, T., Williams, L.H., Jones, C.\*, Luria, R. (2018). Neural processing of repeated search targets depends upon stimuli: Real world stimuli engage semantic processing and recognition memory. *Frontiers in Human Neuroscience*. 12. 460.
6. Williams, L.H., Drew, T. (2018). Working memory capacity predicts search accuracy for novel as well as repeated targets. *Visual Cognition*. 26(6), 463-474, doi: 10.1080/13506285.2018.1490370.

7. Drew, T., Williams, L.H., Aldred, B., Heilbrun, M.E., Minoshima, S. (2018). Quantifying the costs of interruption during diagnostic radiology interpretation using mobile eye-tracking glasses. *Journal of Medical Imaging*. 5(3), 031406, doi: 10.1117/1.JMI.5.3.031406.
8. Drew, T., Williams, L.H. (2017). Simple online feedback during visual search is not helpful. *Cognitive Research: Principles and Implications*. 2(1), 44, doi: 10.1186/s41235-017-0082-3.
9. Williams, L.H., Drew, T. (2017). Distraction in diagnostic radiology: How is search through volumetric images affected by interruptions? *Cognitive Research: Principles and Implications*, 2(1), 12, doi: 10.1186/s41235-017-0050-y.

## Manuscripts in Preparation

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1. Williams, L.H., Störmer, V.S., Brady, T.F. (in prep). The working memory advantage for meaningful stimuli persists under high levels of proactive interference.
2. Williams, L.H., Mills, M., Carrigan, A., Rich, A., Drew, T. (in prep). Experience does not protect against missed incidental-findings in radiology.
3. Williams, L.H., Wiegand, I., Wolfe, J., Lavelle, M.\*, Fukuda, K., Drew, T. (in prep). Electrophysiological correlates of searching through memory for hybrid search targets.

## Book Chapters

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1. Rubin, G., Drew, T., Williams, L.H. (2018). Perception of volumetric data. In Samei, E., & Krupinski, E. (Eds.). (2018). *The Handbook of Medical Image Perception and Techniques* (pp. 307-327). Cambridge: Cambridge University Press. doi:10.1017/9781108163781.

## Invited Talks

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| 1. SPIE Medical Imaging, Symposium on Eyetracking in Volumetric Medical Images          | Feb. 2022 |
| 2. University of Iowa, Cognitive Brown Bag  | Nov. 2021 |
| 3. Lehigh University, Department of Psychology  | 2021      |
| 4. Imaging Elevated Symposium, University of Utah, Department of Radiology              | 2019      |
| 5. Centre for Elite Performance, Expertise, and Training workshop, Macquarie University | 2019      |
| 6. Medical Image Optimization and Perception Group, University of Sydney                | 2019      |
| 7. Perception and Action Research Centre, Macquarie University                          | 2019      |

## Conference Talks

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1. Williams, L.H., Mills, M., Carrigan, A., Rich, A., Drew, T. (2022, February). Experience does not protect against missed incidental-findings in radiology. Paper submitted for presentation at the SPIE Medical Imaging conference.
2. Williams, L.H., Störmer, V.S., Brady, T.F. (2021, November). The working memory advantage for meaningful stimuli persists under high levels of proactive interference. Talk accepted for presentation at the Object, Perception, Attention, and Memory meeting.
3. Williams, L.H., Carrigan, A., Aufferman, W., Mills, M., Rich, A., Drew, T. (2021, September). Inattentive blindness to clinically relevant findings. Paper accepted for presentation (by the 2<sup>nd</sup> author) at the 71<sup>st</sup> Royal Australian and New Zealand College of Radiologists (RANZCR) ASM.
4. Ostlund, R., Raby, L., Williams, L.H., Conradt, E., Drew, T. (2021, April). Prenatal Distress and Neurobehavior in Infancy and Early Childhood: Testing Putative Biological Mechanisms. Symposia presented at the annual Society for Research in Child Development meeting.

5. Williams, L.H., Wiegand, I., Lavelle, M.E.\* , Wolfe, J.M., Fukuda, K., Drew, T. (2020, June). What is the role of working memory in hybrid search?: Evidence from the Contralateral Delay Activity. Talk presented at the Virtual Vision Sciences Society meeting.
6. Lavelle, M.E.\* , Cornelison, K.\* , Williams, L.H., Drew, T. (2020, June). Attentional deployment during visual search predicts subsequent long-term memory of real world objects. Talk presented at the Virtual Vision Sciences Society meeting.
7. Williams, L.H., Carrigan, A., Auffermann, W.F., Mills, M., Rich, A.N., Drew, T. (2019, November). What are the characteristics of expert search behavior in volumetric medical images? Talk presented at the Object, Perception, Attention, and Memory meeting, Montreal, Que.
8. Drew, T., Alonso, D., Vazquez, S.\* , Tasevac, A.\* , Williams, L.H. (2019, November). Telephone interruptions lead to uniquely prolonged cognitive impairment. Talk presented at the Psychonomics Society Meeting, Montreal, Que.
9. Williams, L.H., Carrigan, A., Auffermann, W.F., Mills, M., Rich, A.N., Drew, T. (2019, July). The invisible breast cancer: Inattentive blindness in response to medically-relevant stimuli in radiologists. Talk presented at the Medical Image Perception Society meeting, Salt Lake City, UT.
10. Williams, L.H., Carrigan, A., Auffermann, W.F., Mills, M., Rich, A.N., Drew, T. (2019, April). Inattentive blindness in response to medically-relevant stimuli in radiologists. Talk presented at the Experimental Psychology Conference, Wellington, New Zealand.
11. Williams, L.H., Carrigan, A., Auffermann, W.F., Mills, M., Rich, A.N., Drew, T. (2019, April). The invisible breast cancer: Inattentive blindness in response to medically-relevant stimuli in radiologists. Talk presented at the Australasian Diagnostic Error in Medicine Conference, Melbourne, Australia.
12. Drew, T., Williams, L.H., Aufferman, W.F., Mills, M. (2018, November). Interruption in radiology: Quantifying differential cost in response to different types of interruption. Talk presented at the Psychonomics Society meeting, New Orleans, LA.
13. Williams, L.H., Drew, T., Wolfe, J., and Wiegand, I. (2018, July). How do you know if you saw that? Electrophysiological correlates of searching through memory. Talk presented at the Cognitive Science Association for Interdisciplinary Learning meeting, Hood River, OR.
14. Ostlund, B., Williams, L.H., Payne, B., Conradt, E., Crowell, S. Drew, T. (2018, July). The adaptive influence of pregnancy-specific anxiety on infant neurophysiology. Talk presented at the Cognitive Science Association for Interdisciplinary Learning meeting, Hood River, OR.
15. Williams, L.H., Drew, T. (2017, August). Individual differences and the role of working memory in visual search. Talk presented at the Cognitive Science Association for Interdisciplinary Learning meeting, Hood River, OR.
16. Williams, L.H., Drew, T. (2017, July). Interruptions in diagnostic radiology: Is there a tradeoff between speed and accuracy? Talk presented at the Medical Image Perception Society meeting, Houston, TX.
17. Drew, T., Williams, L.H., Aldred, B., Heilbrun, M., Minoshima, S. (2017, July). The cost of distraction: Quantifying the effects of interruption during diagnostic radiology using mobile eye tracking. Talk presented at the Medical Image Perception Society meeting, Houston, TX.
18. Williams, L.H., and Drew, T. (2017, April). What can the Contralateral Delay Activity tell us about the role of working memory in visual search? Talk presented at the Rocky Mountain Psychological Association meeting, Salt Lake City, UT.
19. Ostlund, B. D., Williams, L., Conradt, E., Drew, T. (2017, April). Allocating attention to threat: Pupil dilation and fearful temperament in infancy. Symposium presented at the Society for Research in Child Development meeting, Austin, TX.

20. Williams, L.H., Drew, T. (2016, July). Lost in space: The cost of interruption during search through volumetric medical images. Talk presented at the Cognitive Science Association for Interdisciplinary Learning meeting, Hood River, OR.

## Conference Posters

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1. Williams, L.H., Brady, T., Störmer, V.S. (2021, May). Category labels do not improve working memory performance for ambiguous shapes. Poster presented at the Vision Sciences Society meeting.
2. Alonso, D., Tasevac, A.\*, Williams, L.H., Drew, T. (2020, June). Investigating the costs of interruptions on visual search performance. Poster presented at the Vision Sciences Society meeting.
3. Williams, L.H., Wilson, V.\*, Alonso, D., Luria, R., Drew, T. (November, 2019). Neural evidence of reactivating memory for recent search targets. Poster presented at the Psychonomics Society meeting, Montreal, Que.
4. Drew, T., Williams, L.H., Wolfe, J.M., Wiegand, I. (May, 2019). How do you know if you saw that? Electrophysiological correlates of searching through memory. Poster presented at the Vision Sciences Society meeting, St. Pete Beach, FL.
5. Ostlund, B.D., Alonso, D.\*, Williams, L.H., Crowell, S.E., Conradt, E., Drew, T. (March, 2019). Developmental origins and temperamental correlates of neural reactivity to novelty among 7-month-olds: An ERP study. Poster presented at the Society for Research in Child Development meeting, Baltimore, MD.
6. Williams, L.H., Wiegand, I., Wolfe, J., and Drew, T. (2018, November). Electrophysiological correlates of searching through memory during hybrid visual search. Poster presented at the Object, Perception, Attention, and Memory meeting, New Orleans, LA.
7. Williams, L.H., Drew, T. (2018, November). Visual search is faster when there is less target information in working memory. Poster presented at the Psychonomics Society meeting, New Orleans, LA.
8. Alonso, D.\*, Wilson, V.\*, Williams, L.H., Jones, C.\*, Luria, R., Drew, T. (2018, October). Old or new? Electrophysiological measures of working memory and long-term memory for previously encountered targets during visual search. Poster presented at the Snowbird Neuroscience Symposium, Snowbird, UT.
9. Williams, L.H., Drew, T. (2018, May). Are rejected distractors maintained in working memory? Evidence from the Contralateral Delay Activity. Poster presented at the Vision Sciences Society meeting, St. Pete Beach, FL.
10. Jones, C.\*, Williams, L.H., Drew, T. (2018, May). Does this grab your attention? A comparison of attention and memory resources deployed during search for artificial and real world objects. Poster presented at the Vision Sciences Society meeting, St. Pete Beach, FL.
11. Williams, L.H., Drew, T. (2018, May). Now, where was I? Investigating the utility of eye-tracking feedback during interrupted search tasks. Poster presented at the International meeting of the Psychonomics Society, Amsterdam, The Netherlands.
12. Williams, L.H., Drew, T. (2017, November). Does interruption prevalence influence the magnitude of the interruption cost in volumetric medical image search? Poster presented at the Object, Perception, Attention, and Memory meeting, Vancouver, BC.
13. Williams, L.H., Jones, C.\*, Drew, T. (2017, November). Repeated target search: Does the nature of the target determine the rate of transfer into long-term memory? Poster presented at the Psychonomics Society meeting, Vancouver, BC.
14. Jones, C.\*, Williams, L.H., Drew, T. (2017, October). Hey, remember me? A comparison of memory resources used in artificial stimuli and real world objects. Poster presented at the Snowbird Neuroscience Symposium, Snowbird, UT.

15. Williams, L.H., Drew, T. (2017, May). Electrophysiological correlates of individual differences in visual search. Poster presented at the Vision Sciences Society meeting, St. Pete Beach, FL.
16. Williams, L.H., Drew, T. (2016, November). Exploring the role of working memory in visual search: Repeating targets does not diminish the relationship between search and working memory capacity. Poster presented at the Psychonomics Society meeting, Boston, MA.
17. Williams, L., Drew, T. (2016, May). Lost in space: The cost of interruption during search through volumetric medical images. Poster presented at the Vision Sciences Society meeting, St. Pete Beach, FL.
18. Kikumoto, A., Williams, L., Robson, S., Mayr, U. (2015, March). Using the Contralateral Delay Activity to probe the nature of task sets representation. Poster presented at the Cognitive Neuroscience Society meeting, San Francisco, CA.
19. Williams, L., Robson, S., Mayr, U. (2014, May). Plasticity-based brain training and aging: A meta-analytic review. Poster presented at the Stanford Undergraduate Psychology Conference, Stanford, CA.
20. Williams, L., Robson, S., Mayr, U. (2014, May). Plasticity-based brain training and aging: A meta-analytic review. Poster presented at the UCLA Psychology Undergraduate Research Conference, Los Angeles, CA.

\*Undergraduate mentee

## Professional Training

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ERP Boot Camp, UC-Davis Center for Mind and Brain 2016

## Honors & Awards

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1. Vision Sciences Society Travel Award 2021
2. Professional Development Award – University of Utah, Department of Psychology, \$500 2019
3. B. Jack White Award – University of Utah, Department of Psychology, \$1250 2019
4. Outstanding Emerging Investigator – University of Utah, Department of Radiology 2019
5. Experimental Psychology Conference Travel Award, \$500 NZD 2019
6. Commendation for Research – University of Utah, Department of Psychology 2018
7. Medical Image Perception Society's Student Scholar Award, \$1200 2017
8. Graduate Student Travel Assistance Funding, \$800 2016, 2017
9. Clayton Summer Funding Award, University of Utah 2016

## Other Research Experience

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**Visiting Scholar** **Dartmouth College**  
 PI: Viola Störmer Aug 2020 – Present

**Visiting Student Researcher** **Macquarie University**  
 PI: Anina Rich Feb 2019 – July 2019

**Visiting Student Researcher** **Tel Aviv University**  
 PI: Roy Luria Feb 2018 – March 2018

**Lab Manager/Research Assistant** **University of Oregon**  
 PI: Ulrich Mayr Jan 2013 – April 2015

## Teaching Experience

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- **Instructor**, Research Methods, University of Utah (*Average Instructor Rating = 5.59/6*) 2020
- **Lab Instructor**, Research Methods, University of Utah (*Average Instructor Rating = 6/6*) 2018

- **Guest lecturer**, Sensation and Perception, University of Utah 2018
- **Guest lecturer**, Brain & Behavior, University of Utah 2018
- **Guest lecturer**, Cognition, University of Utah 2016
- **Guest lecturer**, Sensation and Perception, University of Utah 2015

## Professional Service

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**Assistant Guest Editor**, CR:PI Special Issue: Visual Search in Real World & Applied Contexts 2021

### Ad Hoc Reviewer:

*Psychonomic Bulletin & Review; Cognitive Research: Principles and Implications; Journal of Experimental Psychology: Human Perception and Performance; Journal of Experimental Psychology: Learning, Memory, and Cognition; Journal of Experimental Psychology: Applied; Applied Cognitive Psychology; Current Psychology; Journal of Medical Imaging; Journal of Neurophysiology; Neuroradiology; Medical Physics; British Medical Journal: Open*

### Departmental Service:

1. Faculty Search Committee Graduate Student Representative, University of Utah 2019
2. Professional Issues & Ethics (PIE) Committee Representative, University of Utah 2019-2020
3. Graduation Committee, University of Utah 2015-2017

### Conference Organization:

1. Student Co-Organizer, Medical Image Perception Society Meeting – Salt Lake City, UT 2019

## Community Outreach

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1. Diversity Graduate School Application Advisory, Vice President, University of Utah 2017-2020
2. Diversity Committee, University of Utah 2018-2020
3. Rural Outreach Committee, University of Utah 2018-2020
  - Outreach Presentation at SUCCESS Academy, Cedar City, UT 2018
4. Judge for the Undergraduate Research Symposium at the University of Utah 2018-2020
5. National Science Foundation, STEM Ambassador 2017-2018
  - Host of Neuroscience-themed Game Design Challenge, Demolition Games 2017
  - Outreach Presentation at Magna Senior Center 2017
  - Outreach Presentation at Tenth East Senior Center 2017
6. Judge for the Salt Lake Valley Science & Engineering Fair 2017
7. Judge for the Annual Charter School Science and Engineering Fair 2016,2017
8. Graduate Student Mentor for AMES High School Student Science Fair 2015-2016

## Professional Memberships

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Vision Sciences Society, Psychonomic Society, Medical Image Perception Society, SPIE