

# Joshua T. Abbott

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## CONTACT INFORMATION

University of California, Berkeley  
Department of Psychology  
Tolman Hall #5429  
Berkeley, CA 94720 USA

**e-mail:** [joshua.abbott@berkeley.edu](mailto:joshua.abbott@berkeley.edu)  
**website:** [cocosci.berkeley.edu/josh/](http://cocosci.berkeley.edu/josh/)

## EDUCATION

Ph.D., Psychology, 2016  
University of California, Berkeley  
Advisor: Thomas L. Griffiths  
Dissertation: *Statistical models of learning and using semantic representations*

M.Phil, Computer Science (CSTIT), 2010  
University of Cambridge  
Advisor: Zoubin Ghahramani  
Thesis: *Relevance feedback and novelty detection under the Bayesian Sets framework*

B.A. (Honors), Computer Science, 2009  
New College of Florida  
Advisor: Heidi E. Harley  
Thesis: *Temporal sequence analysis of Bottlenose dolphin vocalizations*

## AWARDS

Cognitive Science Society Computational Modeling Prize in Perception and Action. 2016.  
UC Berkeley Rosenzweig Departmental Fellowship. 2015.  
UC Berkeley Institute of Cognitive and Brain Sciences Research Grant. 2012.  
Neural Information Processing Systems Conference Travel Award. 2011, 2012.  
National Science Foundation Graduate Research Fellowship. *Honorable Mention*. 2011.  
Barry M. Goldwater Scholarship. 2008.

## JOURNAL ARTICLES

1. A.E. Skelton, G. Catchpole, **J.T. Abbott**, J.M. Bosten, and A. Franklin. (2017). Biological origins of color categorization. *Proceedings of the National Academy of Sciences*. 114(21), 5545-5550.
2. **J.T. Abbott**, T.L. Griffiths, and T. Regier. (2016). Focal colors across languages are representative members of color categories. *Proceedings of the National Academy of Sciences*. 113(40), 11178-11183.
3. T.L. Griffiths, **J.T. Abbott**, and A.S. Hsu. (2016). Exploring human cognition using large image databases. *Topics in Cognitive Science*. 8(3), 569-588.
4. **J.T. Abbott**, J.L. Austerweil, and T.L. Griffiths. (2015). Random walks on semantic networks can resemble optimal foraging. *Psychological Review*. 122(3), 558-569.

## PEER-REVIEWED CONFERENCE PROCEEDINGS

5. J.C. Peterson, **J.T. Abbott**, and T.L. Griffiths. (in press). Adapting deep network features to capture psychological representations: An abridged report. In *Proceedings of the 26th International Joint Conference on Artificial Intelligence*.
6. J.C. Peterson, **J.T. Abbott**, and T.L. Griffiths. (2016). Adapting deep network features to capture psychological representations. In *Proceedings of the 38th Annual Conference of the Cognitive Science Society*. (Computational Modeling Prize in Perception and Action).

7. D.D. Bourgin, **J.T. Abbott**, K.A. Smith, E. Vul, and T.L. Griffiths. (2014). Empirical evidence for Markov chain Monte Carlo in memory search. In *Proceedings of the 36th Annual Conference of the Cognitive Science Society*.
8. Y. Jia, **J.T. Abbott**, J.L. Austerweil, T.L. Griffiths and T. Darrell. (2013). Visual concept learning: combining machine vision and Bayesian generalization on concept hierarchies. In *Advances in Neural Information Processing Systems 26*.
9. **J.T. Abbott**, J.B. Hamrick, and T.L. Griffiths. (2013). Approximating Bayesian inference with a sparse distributed memory system. In *Proceedings of the 35th Annual Conference of the Cognitive Science Society*.
10. **J.T. Abbott**, J.L. Austerweil, and T.L. Griffiths. (2012). Human memory search as a random walk in a semantic network. In *Advances in Neural Information Processing Systems 25*. (Spotlight Presentation).
11. **J.T. Abbott**, T. Regier, and T.L. Griffiths. (2012). Predicting focal colors with a rational model of representativeness. In *Proceedings of the 34th Annual Conference of the Cognitive Science Society*.
12. **J.T. Abbott**, J.L. Austerweil, and T.L. Griffiths. (2012). Constructing a hypothesis space from the Web for large-scale Bayesian word learning. In *Proceedings of the 34th Annual Conference of the Cognitive Science Society*.
13. **J.T. Abbott**, K.A. Heller, Z. Ghahramani, and T.L. Griffiths. (2011). Testing a Bayesian measure of representativeness using a large image database. In *Advances in Neural Information Processing Systems 24*.
14. **J.T. Abbott** and T.L. Griffiths. (2011). Exploring the influence of particle filter parameters on order effects in causal learning. In *Proceedings of the 33rd Annual Conference of the Cognitive Science Society*.
15. **J.T. Abbott**. (2009). Some generalizations on counting binary strings. In *Congressus Numerantium*, Vol. 198.
16. **J.T. Abbott** and T. McGuire. (2008). Using graphs and games to generate cap set bounds. In *Congressus Numerantium*, Vol. 189.
17. **J.T. Abbott**, P.Z. Chinn, T.J. Evans, and A.J. Stewart. (2007). Graph adjacency matrix automata. In *Congressus Numerantium* Vol. 188.

TECHNICAL  
REPORTS

18. Y. Jia, **J.T. Abbott**, J.L. Austerweil, T.L. Griffiths and T. Darrell. (2012). Visually-grounded Bayesian word learning. Technical Report UCB/EECS-2012-202. EECS Department, University of California, Berkeley.

MANUSCRIPTS IN  
PREPARATION

- J.C. Peterson, **J.T. Abbott**, and T.L. Griffiths. Deep CNN features approximate human psychological representations. (in preparation).
- **J.T. Abbott**, J.L. Austerweil, and T.L. Griffiths. Large-scale Bayesian word learning. (in preparation).
- **J.T. Abbott** and T.L. Griffiths. Sequential approximations to Bayesian inference produce order effects in causal learning. (in preparation).

CONFERENCE  
PRESENTATIONS

2017. 2nd Lancaster Conference on Infant and Early Child Development. Lancaster, UK.  
Sister Conference Best Paper Track. 26th International Joint Conference on Artificial Intelligence. Melbourne, Australia.
2016. Representation Learning in Artificial and Biological Neural Networks workshop. Neural Information Processing Systems conference. Barcelona, Spain.  
38th Annual Conference of the Cognitive Science Society. Philadelphia, Pennsylvania.  
15th Neural Computation and Psychology Workshop. Philadelphia, Pennsylvania.
2014. 36th Annual Conference of the Cognitive Science Society. Québec City, Canada.
2013. Neural Information Processing Systems conference. Lake Tahoe, Nevada.  
35th Annual Conference of the Cognitive Science Society. Berlin, Germany.  
Sixth Annual Conference on Embodied and Situated Language Processing. Potsdam, Germany.
2012. Neural Information Processing Systems conference. Lake Tahoe, Nevada.  
First International Workshop on Large Scale Visual Recognition and Retrieval. Neural Information Processing Systems conference. Lake Tahoe, Nevada.  
34th Annual Conference of the Cognitive Science Society. Sapporo, Japan.
2011. Neural Information Processing Systems conference. Granada, Spain.  
33rd Annual Conference of the Cognitive Science Society. Boston, Massachusetts.  
44th Annual Meeting of the Society for Mathematical Psychology. Boston, Massachusetts.

RESEARCH  
EXPERIENCE

- Postdoctoral Researcher* University of California, Berkeley  
Computational Cognitive Science Lab, PI: Tom Griffiths Fall 2016 - Summer 2017
- Graduate Student Researcher* University of California, Berkeley  
Computational Cognitive Science Lab, PI: Tom Griffiths Fall 2010 - Summer 2016  
Language and Cognition Lab, PI: Terry Regier  
Berkeley Artificial Intelligence Research (BAIR) Lab
- Visiting Scholar* Brown University  
Computational Cognitive Science Lab, PI: Joe Austerweil Fall 2014
- Graduate Summer School* University of California, Los Angeles  
Institute for Pure and Applied Mathematics (IPAM) Summer 2011  
Probabilistic Models of Cognition: The Mathematics of Mind.
- Graduate Summer School* Sardinia, Italy  
Machine Learning Summer School (MLSS) Summer 2010  
Cognitive Science and Machine Learning
- Research Assistant* Massachusetts Institute of Technology  
Operations Research, PI: James Orlin Summer 2009

TEACHING EXPERIENCE	<i>Acting Graduate Instructor of Record</i> Computational Models of Cognition	Department of Cognitive Science, UC Berkeley Spring 2014
	<i>Head Graduate Student Instructor</i> Computational Models of Cognition	Department of Cognitive Science, UC Berkeley Fall 2011, Spring 2013
	<i>Teaching Assistant</i> Linear Algebra Calculus I	Department of Natural Sciences, New College of Florida Spring 2008 Fall 2007, Fall 2008

ADVISING EXPERIENCE	Alice Park, Undergraduate Research Assistant University of California, Berkeley. Spring 2015 - Summer 2015.
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Tiffany Hwu, Undergraduate Research Assistant and Honors Thesis Student  
University of California, Berkeley. Fall 2011 - Spring 2014.

PROGRAMMING EXPERIENCE	(expert; 10+ years) python, Matlab, C, php/mysql/html, latex (proficient; 3-5 years) C++/C#, Java, perl
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PROFESSIONAL SERVICE	Ad Hoc Reviewer: <i>Proceedings of the National Academy of Sciences, Psychological Review, Cognitive Science, Journal of Mathematical Psychology, Behavior Research Methods</i> , the Annual Conference of the Cognitive Science Society, IEEE International Conference on Developmental Learning and Epigenetic Robotics, and the Neural Information Processing Systems conference.
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REFERENCES	Tom Griffiths Professor of Psychology and Cognitive Science University of California, Berkeley <a href="mailto:tom_griffiths@berkeley.edu">tom_griffiths@berkeley.edu</a>
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Terry Regier  
Professor of Linguistics and Cognitive Science  
University of California, Berkeley  
[terry.regier@berkeley.edu](mailto:terry.regier@berkeley.edu)

Joe Austerweil  
Assistant Professor of Psychology  
University of Wisconsin, Madison  
[austerweil@wisc.edu](mailto:austerweil@wisc.edu)

Heidi Harley  
Professor of Psychology  
New College of Florida  
[harley@ncf.edu](mailto:harley@ncf.edu)