Joshua T. Abbott

✉ joshua.t.abbott@gmail.com
joshabbott.github.io

Profile

Computational social scientist with expertise in user modeling, Bayesian statistics, and representation learning. I use theory and large-scale experiments from psychological sciences to build better machine learning models for information retrieval and recommendation systems.

Interested in both data science and machine learning research and engineering roles.

Programming Experience

Languages: Python, C/C++/C#, MATLAB
ML Tools: tensorflow, scikit-learn, opencv, pandas
Misc: git, latex, mysql, mturk/php/html experiments

Education

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

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

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

Research Experience

2018–2020 **Postdoctoral Fellow**, *University of Melbourne*.
Complex Human Data Hub, PI: Charles Kemp

2017–2018 **Postdoctoral Fellow**, *Max Planck Institute for Human Development*.
Center for Adaptive Rationality, PI: Tim Pleskac

2010–2016 **Graduate Student Researcher**, *University of California, Berkeley*.
Computational Cognitive Science Lab, PI: Tom Griffiths
Language and Cognition Lab, PI: Terry Regier
Berkeley Artificial Intelligence Research (BAIR) Lab

2014 **Visiting Scholar**, *Brown University*.
Computational Cognitive Science Lab, PI: Joe Austerweil

2011 **Graduate Summer School**, *University of California, Los Angeles*.
Institute for Pure and Applied Mathematics (IPAM)
Probabilistic Models of Cognition: The Mathematics of Mind

2010 **Graduate Summer School**, *Sardinia, Italy*.
Machine Learning Summer School (MLSS)
Cognitive Science and Machine Learning

Representative Publications and Conference Proceedings

- D.D. Bourgin, J.T. Abbott, and T.L. Griffiths. (in press). Recommendation as generalization: Using big data to evaluate cognitive models. *Journal of Experimental Psychology: General.*
- J.C. Peterson, J.T. Abbott, and T.L. Griffiths. (2018). Evaluating (and improving) the correspondence between deep neural networks and human representations. *Cognitive Science.* 42(8), 2648-2669.
- 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.
- D.D. Bourgin, J.T. Abbott, and T.L. Griffiths. (2017). Towards More Human-Like Recommendations. In *Proceedings of the NIPS 2017 Workshop on Cognitively Informed Artificial Intelligence: Insights from Natural Intelligence.* (Spotlight Presentation).
- E. Grant, J.C. Peterson, J.T. Abbott, S. Levine, T.L. Griffiths, and T. Darrell. (2017). Concept acquisition via meta-learning: Few-shot learning from positive examples. In *Proceedings of the NIPS 2017 Workshop on Cognitively Informed Artificial Intelligence: Insights from Natural Intelligence.*
- 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.
- 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.
- 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).
- 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.
- 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.*
- 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).
- 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.*
- 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.*

References

- Tom Griffiths
  Professor of Psychology and Computer Science
  Princeton University
  `tomg@princeton.edu`

- Charles Kemp
  Associate Professor of Psychological Sciences
  University of Melbourne
  `c.kemp@unimelb.edu.au`

- Terry Regier
  Professor of Linguistics and Cognitive Science
  University of California, Berkeley
  `terry.regier@berkeley.edu`