

David Pfau

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PROFESSIONAL EXPERIENCE	Google DeepMind , London, UK <i>Research Scientist</i>	2015 - present
	Qadium , San Francisco, CA <i>Senior Research Scientist</i> Consulted on Data Microscopes, an open-source library of fast, modular nonparametric Bayesian models.	2014 - 2015
EDUCATION	Columbia University , New York, NY Ph.D., Neurobiology and Behavior. July 2014. <ul style="list-style-type: none">• Advisor: Liam Paninski• Thesis: <i>Learning Structure in Time Series for Neuroscience and Beyond</i> M.Phil., Neurobiology and Behavior. November 2011.	2008 - 2014
	Stanford University , Stanford, CA B.S., Physics, Minor in Mathematics. GPA: 3.76, 3.88 in major.	2003 - 2007
HONORS AND AWARDS	National Science Foundation Graduate Research Fellowship	2009
	Stanford Summer Research Fellowship	2006
	National Merit Scholarship	2003
JOURNAL PUBLICATIONS	E. A. Pnevmatikakis, D. Soudry, Y. Gao, T. A. Machado, J. Merel, D. Pfau , T. Reardon, Y. Mu, C. Lacefield, W. Yang, M. Ahrens, R. Bruno, T. M. Jessell, D. S. Peterka, R. Yuste, L. Paninski (2016). <i>Simultaneous Denoising, Deconvolution, and Demixing of Calcium Imaging Data</i> . <i>Neuron</i> 89(2):285-299.	
	F. Doshi-Velez, D. Pfau , F. Wood, N. Roy (2015). <i>Bayesian Nonparametric Methods for Partially-Observable Reinforcement Learning</i> . <i>IEEE Transactions on Pattern Analysis and Machine Intelligence</i> 37(2):394-407.	
	J. Zylberberg, D. Pfau , M. DeWeese (2012). <i>Dead Leaves and the Dirty Ground: Low-level Image Statistics in Transmissive and Occlusive Imaging Environments</i> . <i>Physical Review E</i> 86, 066112. http://arxiv.org/abs/1209.3277	
CONFERENCE PUBLICATIONS	M. Andrychowicz, M. Denil, S. Gomez, M. W. Hoffman, D. Pfau , T. Schaul, N. de Freitas (2016). <i>Learning to Learn by Gradient Descent by Gradient Descent</i> . <i>Advances in Neural Information Processing Systems</i> 30, Barcelona, Spain.	
	C. Fernando, D. Banarse, M. Reynolds, F. Besse, D. Pfau , M. Jaderberg, M. Lanctot, D. Wierstra (2016). <i>Convolution by Evolution: Differentiable Pattern Producing Networks</i> . <i>The Genetic and Evolutionary Computing Conference</i> , Denver, CO.	
	D. Pfau , E. Pnevmatikakis, L. Paninski (2013). <i>Robust Learning of Low-Dimensional Dynamics from Large Neural Ensembles</i> . <i>Advances in Neural Information Processing Systems</i> 26, Lake Tahoe, NV.	
	Y. Wong, D. Putrino, M. Vigerl, D. Pfau , J. Merel, L. Paninski, B. Pesaran (2012). <i>Decoding</i>	

Arm and Hand Movements Across Layers of the Macaque Frontal Cortices. Proceedings of the 34th Conference of the IEEE Engineering in Medicine and Biology Society, San Diego, CA.

D. Pfau, N. Bartlett, F. Wood (2010). *Probabilistic Deterministic Infinite Automata*. Advances in Neural Information Processing Systems 23, Vancouver, Canada. **Poster Spotlight Presentation**.

N. Bartlett, **D. Pfau**, F. Wood (2010). *Forgetting Counts: Constant Memory Inference for a Dependent Hierarchical Pitman-Yor Process*. Proceedings of the Twenty-Seventh International Conference on Machine Learning, Haifa, Israel.

CONFERENCE
ABSTRACTS AND
POSTER
PRESENTATIONS

D. Pfau, J. Freeman, M. Ahrens, L. Paninski (2013). *Scalable Region of Interest Detection for Calcium Imaging*. NIPS Workshop: Acquiring and Analyzing the Activity of Large Neural Ensembles.

D. Pfau, E. Pnevmatikakis, L. Paninski (2013). *Robust Learning of Dynamics for Large Neural Ensembles*. Computational and Systems Neuroscience, Salt Lake City, UT.

K. Emmett, J. Rosenstein, **D. Pfau**, A. Bamberger, K. Shepard, C. Wiggins (2013). *Statistical Inference of DNA Translocation using Parallel Expectation Maximization*. Bulletin of the American Physical Society 58(1), Baltimore, MD.

D. Pfau, N. Bartlett, F. Wood (2010). *Bayesian Infinite Automata*. New York Machine Learning Symposium, New York, NY.

D. Pfau, X. Pitkow, L. Paninski (2009). *A Bayesian Method to Predict the Optimal Diffusion Coefficient in Random Fixational Eye Movements*. Computational and Systems Neuroscience, Salt Lake City, UT. doi:10.3389/conf.neuro.06.2009.03.049

INVITED TALKS

Gray Area Foundation for the Arts, San Francisco, CA. February 2016
Redwood Center for Theoretical Neuroscience, Berkeley, CA. April 2014
CoSyNe Workshop: Discovering Structure in Neural Data, Snowbird, UT. March 2014

TEACHING
EXPERIENCE

Columbia University, New York, NY
Guest Lecturer, W3995 Neuroscience and the Law Fall 2013
Teaching Assistant, G8325 Statistical Analysis of Neural Data Fall 2012
Teaching Assistant, G4360 Theoretical Neuroscience Spring 2011
Educational Program for Gifted Youth, Stanford, CA
Tutor and Counselor, Physics Program Summer 2005

PROFESSIONAL
ACTIVITIES

Reviewer, International Conference on Learning Representations (upcoming) 2017
Reviewer, Computational and Systems Neuroscience (upcoming) 2017
Reviewer, IEEE Transactions on Pattern Analysis and Machine Intelligence 2012
Reviewer, Neural Information Processing Systems 2011, 2013, 2015, 2016
Reviewer, Journal of Machine Learning Research 2011
Reviewer, Artificial Intelligence and Statistics 2011
Volunteer, Neural Information Processing Systems 2010