

Ryan P. Adams

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Academic Positions

- 2016– Associate
School of Engineering and Applied Sciences, Harvard University
- 2011–2016 Assistant Professor of Computer Science
School of Engineering and Applied Sciences, Harvard University
- 2009–2011 Canadian Institute for Advanced Research Junior Fellow
Department of Computer Science, University of Toronto
- 2004–2009 Gates Cambridge Scholar
Cavendish Laboratory (Department of Physics), University of Cambridge

Recent Industry Positions

- 2015– Head of Advanced Technologies Group
Twitter
- 2013–2015 Co-Founder and CEO
Whetlab LLC (Acquired by Twitter in June 2015)
- 2009–2010 Consultant
Saxon Cambridge Algorithmic Research, Ltd.

Education

- 2009 Ph.D., Physics, **University of Cambridge**
Kernel methods for nonparametric Bayesian inference of probability densities and point processes
Supervisor: Prof. David J.C. MacKay, FRS
- 2004 B.S., Electrical Engineering and Computer Science, **Massachusetts Institute of Technology**

Honors & Awards

- 2015 Alfred P. Sloan Fellowship
- 2014 Best Paper, 30th Conference on Uncertainty in Artificial Intelligence (*with Dougal Maclaurin*)
- 2010 Best Paper, 13th International Conference on Artificial Intelligence and Statistics (*with Hanna Wallach & Zoubin Ghahramani*)
- 2010 Honorable Mention, International Society for Bayesian Analysis Leonard J. Savage Award for Outstanding Dissertation in Bayesian Theory and Methods
- 2009 Honorable Mention, Best Paper, 26th International Conference on Machine Learning (*with Zoubin Ghahramani*)
- 2009 Honorable Mention, Best Student Paper, 26th International Conference on Machine Learning (*with Iain Murray & David J.C. MacKay*)

Grants & Fellowships

- 2014-17 NSF IIS, *RI: Small: Parallel Methods for Large-Scale Probabilistic Inference*
- 2014-15 Harvard Mind/Brain/Behavior Interfaculty Initiative, *Deep Phenotyping to Probe the Genetic Basis for Behavior*, with Sandeep Datta and Hopi Hoekstra
- 2014-17 Simons Collaboration on the Global Brain Research Award, *Decoding Internal State to Predict Behavior*, with Bernardo Sabatini and Sandeep Robert Datta
- 2014-16 Lawrence Berkeley Laboratory (Department of Energy Subcontract), *Scalable Statistics and Machine Learning for Data-Centric Science*
- 2014-16 Harvard/MIT Joint Research Grants Program In Basic Neuroscience, *New Methods for Social Behavior Analysis* with Sandeep Robert Datta
- 2013-16 Samsung Electronics, *A combined theory and experimental approach towards the discovery of novel blue organic light-emitting diode materials* with Alán Aspuru-Guzik
- 2013-15 Analog Devices Research Gift, *Generative Vision with Novel Transducers: Modeling, Learning, and Inference*
- 2012-14 DARPA Young Faculty Award, *Developing New Methods of Multi-Core Statistical Inference Towards Rapid Data Fusion and Information Extraction* YFA N66001-12-1-4219.
- 2012-14 Amazon AWS in Research Grant, *Parallel Approaches to Large-Scale Bayesian Optimization*
- 2009-11 Canadian Institute for Advanced Research Junior Fellowship
- 2004-09 United Kingdom Overseas Research Scholarship
- 2004-09 Gates Cambridge Scholarship

Teaching

- Spring 2015 Harvard University CS181, *Machine Learning*
- Spring 2014 Harvard University CS181, *Machine Learning*
- Spring 2014 Harvard Extension School CSCI E-181, *Machine Learning*
- Fall 2013 Harvard University CS281, *Advanced Machine Learning*
- Spring 2013 Harvard University CS181, *Intelligent Machines: Perception, Learning, and Uncertainty*
- Spring 2013 Harvard Extension School CSCI E-181, *Intelligent Machines: Perception, Learning, and Uncertainty*
- Fall 2011 Harvard University CS281, *Advanced Machine Learning*
- 1998-2000 Head Coach, Wellesley College Water Polo Team

1997–1998 Assistant Coach, Massachusetts Institute of Technology Women’s Water Polo Team

Outside Activities

2015- Co-host, *Talking Machines* podcast: <http://www.thetalkingmachines.com/> (~75,000 regular listeners)

Reviewing & Service

Editorial Boards

2013 Associate Editor of *Statistics and Computing*
 2012 Guest Editor of *IEEE Transactions on Pattern Analysis and Machine Intelligence* (PAMI) Special Issue on Bayesian Nonparametrics

Senior Program Committees

2016 Conference on Uncertainty in Artificial Intelligence (UAI)
 2016 Area Chair, International Conference on Artificial Intelligence and Statistics (AISTATS)
 2016 Area Chair, International Conference on Machine Learning (ICML)
 2016 Area Chair, International Conference on Learning Representations (ICLR)
 2015 NIPS Workshop on Bayesian Optimization
 2015 NIPS Workshop on Statistical Methods for Understanding Neural Systems
 2015 Area Chair, International Conference on Machine Learning (ICML)
 2014- Steering Committee, New England Machine Learning Day
 2014 NIPS Workshop on Bayesian Optimization in Academia and Industry
 2014 Area Chair, Neural Information Processing Systems (NIPS)
 2014 Area Chair, International Conference on Machine Learning (ICML)
 2013 Area Chair, Neural Information Processing Systems (NIPS)
 2012 Conference on Uncertainty in Artificial Intelligence (UAI)
 2012 IMS/ASA Spring Research Conference on Statistics in Industry and Technology
 2012 New England Machine Learning Day
 2012 Area Chair, International Conference on Artificial Intelligence and Statistics (AISTATS)
 2011 NIPS Workshop on Bayesian Nonparametrics
 2010 NIPS Workshop on Monte Carlo Methods for Bayesian Inference in Modern Applications
 2010 NIPS Workshop on Transfer Learning Via Deep Generative Models

Journal Reviewing

Neural Computation; Journal of Machine Learning Research; Journal of the American Statistical Association; Technometrics; IEEE Transactions on Information Theory; IEEE Transactions on Neural Networks; IEEE Transactions on Pattern Analysis and Machine Intelligence; IEEE Transactions on Signal Processing; IEEE Transactions on Systems, Man and Cybernetics, Part B; ACM Transactions on Modeling and Computer Simulation; Environmetrics; Pattern Recognition; Computers and Mathematics with Applications; Data Mining and Knowledge Discovery; Statistics and Computing

Conference Reviewing

International Conference on Machine Learning (ICML); International Conference on Artificial Intelligence and Statistics (AISTATS); Advances in Neural Information Processing Systems (NIPS); ACM Symposium on User Interface Software and Technology (UIST); SIGGRAPH; USENIX Conference on File and Storage Technologies (FAST); AAAI Conference on Artificial Intelligence (AAAI); ACM Conference on Knowledge Discovery and Data Mining (KDD); Conference on Uncertainty in Artificial Intelligence (UAI); International Conference on Learning Representations (ICLR)

Within Harvard

- 2013–14 Applied Mathematics Committee for Undergraduate Studies
- 2013 Herchel Smith Undergraduate Research Fellowship Review and Selection Committee
- 2012–13 Neurobiology Standing Committee for Harvard College
- 2011–2012 Advisory Board for SEAS Graduate Program in Computational Science and Engineering

Invited Talks

Recent Research Talks

- 24 Jun 2016 ICML Workshop on AutoML, New York, NY
- 12 Jun 2016 Deep Learning Workshop, MIT
- 30 Mar 2016 Data Learning and Inference (DALI), Sestri Levante, Italy
- 12 Dec 2015 NIPS Workshop on Scalable Monte Carlo Methods, Montreal, QC
- 12 Nov 2015 Broad Institute, Cambridge, MA
- 11 Nov 2015 Computational Linguistics and Information Processing Group, University of Maryland, College Park, MD
- 10 Nov 2015 Center for Language and Speech Processing, Johns Hopkins University, Baltimore, MD
- 4 Oct 2015 SOSPLADIS Workshop, Monterey, CA
- 9 Aug 2015 Joint Statistical Meetings, Seattle, WA
- 10 Jul 2015 ICML Workshop on Constructive Machine Learning, Lille, France
- 25 May 2015 Re.Work Deep Learning Summit, Boston, MA
- 20 May 2015 Microsoft Research New England, Cambridge, MA
- 15 May 2015 Center for Brain Science Retreat, Harvard
- 27 Apr 2015 Next.ML Boston, Cambridge, MA
- 17 Apr 2015 Artificial Intelligence Seminar, Cornell University
- 31 Mar 2015 Center for Brains, Minds and Machines, Harvard/MIT
- 19 Dec 2014 Google, Mountain View, CA
- 19 Dec 2014 Yahoo, Sunnyvale, CA
- 18 Dec 2014 Facebook, Menlo Park, CA
- 13 Nov 2014 Department of Computer Science, Princeton University
- 5 Nov 2014 Department of Statistics, Columbia University
- 27 Oct 2014 Department of Computation and Neural Systems, California Institute of Technology
- 12 Sep 2014 Department of Statistics and Data Mining, University of Texas
- 6 May 2014 Machine Learning Seminar, University of Washington
- 5 May 2014 Department of Statistics, University of Washington
- 19 Apr 2014 Department of Statistics, Harvard University

- 17 Apr 2014 Department of Mathematics and Statistics, Boston University
- 17 Mar 2014 International Biometric Society (ENAR), Baltimore
- 15 Jan 2014 Machine Learning Seminar, Duke University
- 6 Jan 2014 Fifth International IMS/ISBA Joint Meeting (MCMSki IV), Chamonix, France
- 10 Dec 2013 NIPS Workshop on Bayesian Optimization in Theory and Practice
- 9 Dec 2013 NIPS Workshop on High-Dimensional Statistical Inference in the Brain
- 21 Oct 2013 Google, Mountain View, CA
- 16 Oct 2013 Workshop on Quantifying Structure in Large Neural Data Sets, Columbia University
- 5 Sep 2013 Conference on Graphical Models, Department of Statistics, Columbia University
- 25 Jul 2013 Workshop on Sensing and Analysis of High-Dimensional Data, Duke University
- 11 Jun 2013 Conference on Bayesian Nonparametrics, VU University Amsterdam
- 15 May 2013 Department of Computer Science, Dartmouth College
- 1 May 2013 New England Machine Learning Day, Microsoft Research New England
- 22 Mar 2013 Lyric Semiconductor, Cambridge, MA
- 23 Jan 2013 IACS Markov Centenary Celebration, Harvard University
- 7 Dec 2012 NIPS Workshop on Perturbations, Optimization, and Statistics
- 1 Oct 2012 Center for Brain Sciences, Harvard University
- 17 Sep 2012 ICERM Workshop on Bayesian Nonparametrics, Brown University
- 1 Jul 2012 ICML Workshop on Representation Learning, University of Edinburgh
- 6 Jun 2012 ASA Conference on Statistical Learning and Data Mining, University of Michigan
- 13 Apr 2012 Institute for Applied Computational Science, Harvard University
- 4 Apr 2012 Department of Computer Science, Princeton University
- 2 Feb 2012 Department of Computer Science, Boston University
- 21 Nov 2011 Department of Statistics, Harvard University

Invited Tutorials

- 23 Feb 2015 *Bayesian Nonparametrics*
Sydney Machine Learning Summer School
- 14 Aug 2014 *Bayesian Optimization for Machine Learning*
CIFAR Neural Computation and Adaptive Perception Summer School
- 13 Sep 2012 *Introduction to Gaussian Processes*
Institute for Computational and Experimental Research in Mathematics, Brown University
- 14 Aug 2010 *Monte Carlo Methods for Inference and Learning*
CIFAR Neural Computation and Adaptive Perception Summer School

Talks for General Audiences

- 8 Feb 2016 *Using Intelligent Algorithms to Design Intelligent Algorithms*
Science by the Pint
- 24 Jan 2014 *Taking Humans Out of the Machine Learning Loop*
IACS Symposium on Weathering the Data Storm: The Promises and Challenges of Data Science
- 9 Nov 2009 *The Next Big Question: How Do We Think?*
CIFAR Lunar Circle Dinner

- 17 Jun 2009 *Building Machines That Can See: Lessons From Human Vision*
IdeaCity 2009
- 14 Apr 2009 *Perceiving the World with Statistical Machine Learning*
CIFAR Junior Fellow Academy

Academic Supervision

Postdoctoral Fellows

- 2012–14 Finale Doshi-Velez
2013–15 Shamim Nemati
2013–15 Jasper Snoek (CRCS Fellow)
2014–16 David Duvenaud
2014–16 Matthew Johnson
2014–16 José Miguel Hernández Lobato

Primary Advisor

- 2012–15 Michael Gelbart (Harvard Biophysics)
2013–16 Dougal Maclaurin (Harvard Physics)
2012–16 Oren Rippel (MIT Mathematics)
2012– Andrew Miller (Harvard Computer Science)
2014– Yakir Reshef (Harvard Computer Science, MD/PhD)
2014– Ardavan Saeedi (MIT EECS)

Co-Advisor / Secondary Supervisor

- 2012–14 Elaine Angelino (Harvard Computer Science, with Margo Seltzer)
2013–16 Scott Linderman (Harvard Computer Science, with Leslie Valiant)
2012– SueYeon Chung (Harvard Applied Physics, with Haim Sompolinsky)
2012– Eyal Dechter (MIT Brain and Cognitive Sciences, with Joshua Tenenbaum)
2012– Jonathan Malmaud (MIT Brain and Cognitive Sciences, with Joshua Tenenbaum)

Publications

Journal Papers

- 2016 José Miguel Hernández-Lobato, Michael A. Gelbart, **Ryan P. Adams**, Matthew W. Hoffman, and Zoubin Ghahramani. A General Framework for Constrained Bayesian Optimization using Information-based Search. To Appear in *Journal of Machine Learning Research*. [arXiv:1511.09422](https://arxiv.org/abs/1511.09422) [stat.ML]
- 2015 Alexander B. Wiltschko, Matthew J. Johnson, Giuliano Iurilli, Ralph E. Peterson, Jesse M. Katon, Stan L. Pashkovski, Victoria E. Abraira, **Ryan P. Adams**, and Sandeep Robert Datta. Mapping Sub-Second Structure in Mouse Behavior. *Neuron*. 88(6):1121–1135.
- 2015 Bobak Shahriari, Kevin Swersky, Ziyu Wang, **Ryan P. Adams**, and Nando de Freitas. Taking the Human Out of the Loop: A Review of Bayesian Optimization. *Proceedings of the IEEE*. 104(1):148–175.
- 2015 Li-Wei H. Lehman, **Ryan P. Adams**, Louis Mayaud, George B. Moody, Atul Malhotra, Roger G. Mark,

- and Shamim Nemati. A Physiological Time Series Dynamics-Based Approach to Patient Monitoring and Outcome Prediction. *IEEE Journal of Biomedical and Health Informatics*. 19(3):1068-1076.
- 2014 Robert Nishihara, Iain Murray and **Ryan P. Adams**. Parallel MCMC with Generalized Elliptical Slice Sampling. *Journal of Machine Learning Research*, 15(Jun):2087–2112. [arXiv:1210.7477](#) [[stat.CO](#)]
- 2013 Henry T.K. Tse, Daniel R. Gossett, Yo Sup Moon, Mahdokht Maseali, Marie Sohsman, Yong Ying, Kimberly Mislick, **Ryan P. Adams**, Jianyu Rao and Dino Di Carlo. Quantitative Diagnosis of Malignant Pleural Effusions by Single-Cell Mechanophenotyping. *Science Translational Medicine*, 5(212):212ra163.
- 2012 Jasper Snoek, **Ryan P. Adams** and Hugo Larochelle. Nonparametric Guidance of Autoencoder Representations using Label Information. *Journal of Machine Learning Research*, 13(Sep):2567-2588.

Book Chapters

- 2015 Shamim Nemati and Ryan P. Adams. Identifying Outcome-Discriminative Dynamics in Multivariate Physiological Cohort Time Series. In Zhe Chen (Ed.), *Advanced State Space Methods for Neural and Clinical Data*. Cambridge University Press.
- 2015 Li-Wei H. Lehman, Matthew J. Johnson, Shamim Nemati, Ryan P. Adams, and Roger G. Mark. Bayesian Nonparametric Learning of Switching Dynamics in Cohort Physiological Time Series: Application in Critical Care Patient Monitoring. In Zhe Chen (Ed.), *Advanced State Space Methods for Neural and Clinical Data*. Cambridge University Press.
- 2012 Jeroen C. Chua, Inmar E. Givoni, **Ryan P. Adams** and Brendan J. Frey. Bayesian Painting by Numbers: Flexible Priors for Colour-Invariant Object Recognition. In R. Cipolla, S. Battiato & G. M. Farinella (Eds.), *Machine Learning for Computer Vision*, Studies in Computational Intelligence. Berlin: Springer.

Peer Reviewed Conference Papers

- 2016 Daniel Hernández-Lobato, José Miguel Hernández-Lobato, Amar, and **Ryan P. Adams**. Predictive Entropy Search for Multi-objective Bayesian Optimization. To Appear in *Proceedings of the 33rd International Conference on Machine Learning (ICML 2016)*. [arXiv:1511.05467](#) [[stat.ML](#)]
- 2016 Ardavan Saeedi, Matthew Hoffman, Matthew Johnson, and **Ryan P. Adams**. The Segmented iHMM: A Simple, Efficient Hierarchical Infinite HMM. To Appear in *Proceedings of the 33rd International Conference on Machine Learning (ICML 2016)*. [arXiv:1602.06349](#) [[stat.ML](#)]
- 2016 Qian Wan, **Ryan P. Adams** and Robert D. Howe. Variability and Predictability in Tactile Sensing During Grasping. To Appear in *Proceedings of the IEEE International Conference on Robotics and Automation (ICRA 2016)*.
- 2016 Dougal Maclaurin, David Duvenaud and **Ryan P. Adams**. Early Stopping is Nonparametric Variational Inference. To Appear in *Proceedings of the International Conference on Artificial Intelligence and Statistics (AISTATS 2016)*. [arXiv:1504.01344](#) [[stat.ML](#)]
- 2015 Scott Linderman, Matthew Johnson and **Ryan P. Adams**. Dependent Multinomial Models Made Easy: Stick-Breaking with the Pólya-gamma Augmentation. In *Advances in Neural Information Processing Systems 28 (NIPS 2015)*. [arXiv:1506.05843](#) [[stat.ML](#)]
- 2015 David Duvenaud, Dougal Maclaurin, Jorge Aguilera Iparraguirre, Rafael Gómez Bombarelli, Timothy Hirzel, Alán Aspuru-Guzik and **Ryan P. Adams**. Convolutional Networks on Graphs for Learning Molecular Fingerprints. In *Advances in Neural Information Processing Systems 28 (NIPS 2015)*. [arXiv:1509.09292](#) [[stat.ML](#)]
- 2015 Oren Rippel, Jasper Snoek and **Ryan P. Adams**. Spectral Representations for Convolutional Neural Networks. In *Advances in Neural Information Processing Systems 28 (NIPS 2015)*. [arXiv:1506.03767](#) [[stat.ML](#)]

- 2015 Andrew Miller, Albert Wu, Jeffrey Regier, Jon McAuliffe, Prabhat, David Schlegel, Dustin Lang and **Ryan P. Adams**. A Gaussian Process Model of Quasar Spectral Energy Distributions. In *Advances in Neural Information Processing Systems 28 (NIPS 2015)*.
- 2015 Jasper Snoek, Oren Rippel, Kevin Swersky, Ryan Kiros, Nadathur Satish, Narayanan Sundaram, Md. Mostofa Ali Patwary, Prabhat, and **Ryan P. Adams**. Scalable Bayesian Optimization Using Deep Neural Networks. In *Proceedings of the 32nd International Conference on Machine Learning (ICML 2015)*. [arXiv:1502.05700](#) [[stat.ML](#)]
- 2015 Dougal Maclaurin, David Duvenaud and **Ryan P. Adams**. Gradient-based Hyperparameter Optimization through Reversible Learning. In *Proceedings of the 32nd International Conference on Machine Learning (ICML 2015)*. [arXiv:1502.03492](#) [[stat.ML](#)]
- 2015 José Miguel Hernández-Lobato and **Ryan P. Adams**. Probabilistic Backpropagation for Scalable Learning of Bayesian Neural Networks. In *Proceedings of the 32nd International Conference on Machine Learning (ICML 2015)*. [arXiv:1502.05336](#) [[stat.ML](#)]
- 2015 Jeffrey Regier, Andrew Miller, Jon McAuliffe, **Ryan P. Adams**, Matt Hoffman, Dustin Lang, David Schlegel, and Prabhat. Celeste: Variational inference for a generative model of astronomical images. In *Proceedings of the 32nd International Conference on Machine Learning (ICML 2015)*. [arXiv:1506.01351](#) [[astro-ph.IM](#)]
- 2015 José Miguel Hernández-Lobato, Michael A. Gelbart, Matthew W. Hoffman, **Ryan P. Adams**, and Zoubin Ghahramani. Predictive Entropy Search for Bayesian Optimization with Unknown Constraints. In *Proceedings of the 32nd International Conference on Machine Learning (ICML 2015)*. [arXiv:1502.05312](#) [[stat.ML](#)]
- 2015 Finale Doshi-Velez, Byron Wallace and **Ryan P. Adams**. Graph-Sparse LDA: A Topic Model with Structured Sparsity. In *Proceedings of the Twenty-Ninth AAAI Conference on Artificial Intelligence (AAAI-15)*. [arXiv:1410.4510](#) [[stat.ML](#)]
- 2014 Scott Linderman, Christopher Stock and **Ryan P. Adams**. A Framework for Studying Synaptic Plasticity with Neural Spike Train Data. In *Advances in Neural Information Processing Systems 27 (NIPS 2014)*.
- 2014 Dougal Maclaurin and **Ryan P. Adams**. Firefly Monte Carlo: Exact MCMC with Subsets of Data. *Proceedings of the 30th Conference on Uncertainty in Artificial Intelligence (UAI 2014)*. [arXiv:1403.5693](#) [[stat.CO](#), [stat.ML](#)]. **Winner of Best Paper Award**
- 2014 Michael Gelbart, Jasper Snoek and **Ryan P. Adams**. Bayesian Optimization with Unknown Constraints. *Proceedings of the 30th Conference on Uncertainty in Artificial Intelligence (UAI 2014)*. [arXiv:1403.5607](#) [[stat.ML](#)]
- 2014 Elaine Angelino, Eddie Kohler, Amos Waterland, Margo Seltzer and **Ryan P. Adams**. Accelerating MCMC via Parallel Predictive Prefetching. *Proceedings of the 30th Conference on Uncertainty in Artificial Intelligence (UAI 2014)*. [arXiv:1403.7265](#) [[stat.CO](#), [stat.ML](#)]
- 2014 Raja Affandi, Emily Fox, **Ryan P. Adams**, and Ben Taskar. Learning the Parameters of Determinantal Point Process Kernels. *Proceedings of the 31st International Conference on Machine Learning (ICML 2014)*. [arXiv:1402.4862](#) [[stat.ML](#)]
- 2014 Scott Linderman and **Ryan P. Adams**. Discovering Latent Network Structure in Point Process Data. *Proceedings of the 31st International Conference on Machine Learning (ICML 2014)*. [arXiv:1402.0914](#) [[stat.ML](#)]
- 2014 Jasper Snoek, Kevin Swersky, Richard S. Zemel and **Ryan P. Adams**. Input Warping for Bayesian Optimization of Non-stationary Functions. *Proceedings of the 31st International Conference on Machine Learning (ICML 2014)*. [arXiv:1402.0929](#) [[stat.ML](#)]
- 2014 Oren Rippel, Michael Gelbart and **Ryan P. Adams**. Learning Ordered Representations with Nested Dropout. *Proceedings of the 31st International Conference on Machine Learning (ICML 2014)*. [arXiv:1402.0915](#)

[\[stat.ML\]](#)

- 2014 Andrew Miller, Luke Bornn, **Ryan P. Adams**, and Kirk Goldsberry. Factorized Point Process Intensities: A Spatial Analysis of Professional Basketball. *Proceedings of the 31st International Conference on Machine Learning (ICML 2014)*. [arXiv:1401.0942](#) [\[stat.ML\]](#)
- 2014 Xi Alice Gao, Andrew Mao, Yiling Chen and **Ryan P. Adams**. Trick or Treat: Putting Peer Prediction to the Test. *Proceedings of the 15th ACM Conference on Economics and Computation (EC 2014)*.
- 2014 David Duvenaud, Oren Rippel, **Ryan P. Adams** and Zoubin Ghahramani. Avoiding Pathologies in Very Deep Networks. *Proceedings of the 17th International Conference on Artificial Intelligence and Statistics (AISTATS 2014)*. [1402.5836](#) [\[stat.ML\]](#)
- 2014 Amos Waterland, Elaine Angelino, **Ryan P. Adams**, Jonathan Appavoo and Margo Seltzer. ASC: Automatically Scalable Computation. *Proceedings of the Nineteenth International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS 2014)*.
- 2013 Nils Napp and **Ryan P. Adams**. Message Passing Inference with Chemical Reaction Networks. *Advances in Neural Information Processing Systems 26 (NIPS 2013)*.
- 2013 Jasper Snoek, **Ryan P. Adams** and Richard S. Zemel. A Determinantal Point Process Latent Variable Model for Inhibition in Neural Spiking Data. *Advances in Neural Information Processing Systems 26 (NIPS 2013)*.
- 2013 Jasper Snoek, Kevin Swersky and **Ryan P. Adams**. Multi-Task Bayesian Optimization. *Advances in Neural Information Processing Systems 26 (NIPS 2013)*.
- 2013 James Zou, Daniel Hsu, David Parkes and **Ryan P. Adams**. Contrastive Learning Using Spectral Methods. *Advances in Neural Information Processing Systems 26 (NIPS 2013)*.
- 2013 Amos Waterland, Elaine Angelino, Ekin D. Cubuk, Efthimios Kaxiras, **Ryan P. Adams**, Jonathan Appavoo and Margo Seltzer. Computational Caches. *Proceedings of the 6th International Systems and Storage Conference (SYSTOR 2013)*.
- 2013 Shamim Nemati, Li-Wei Lehman and **Ryan P. Adams**. Learning Outcome-Discriminative Dynamics in Multivariate Physiological Cohort Time Series. *Proceedings of the 35th International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC 2013)*.
- 2013 Li-Wei Lehman, Shamim Nemati, **Ryan P. Adams**, George Moody, Atul Malhotra, and Roger G. Mark. Tracking Progression of Patient State of Health in Critical Care Using Inferred Shared Dynamics in Physiological Time Series. *Proceedings of the 35th International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC 2013)*.
- 2013 Andrew Wilson and **Ryan P. Adams**. Gaussian Process Kernels for Pattern Discovery and Extrapolation. *Proceedings of the 30th International Conference on Machine Learning (ICML 2013)*. [arXiv:1302.4245](#) [\[stat.ML\]](#)
- 2013 Eyal Dechter, Jonathan Malmaud, **Ryan P. Adams** and Joshua Tenenbaum. Bootstrap Learning Via Modular Concept Discovery. *Proceedings of the 23rd International Joint Conference on Artificial Intelligence (IJCAI 2013)*.
- 2012 Jasper Snoek, Hugo Larochelle and **Ryan P. Adams**. Practical Bayesian Optimization of Machine Learning Algorithms. *Advances in Neural Information Processing Systems 25 (NIPS 2012)*. [arXiv:1206.2944](#) [\[stat.ML\]](#)
- 2012 James Zou and **Ryan P. Adams**. Priors for Diversity in Generative Latent Variable Models. *Advances in Neural Information Processing Systems 25 (NIPS 2012)*.
- 2012 Kevin Swersky, Daniel Tarlow, **Ryan P. Adams**, Richard S. Zemel and Brendan J. Frey. Probabilistic n -choose- k Models for Classification and Ranking. *Advances in Neural Information Processing Systems 25 (NIPS 2012)*.
- 2012 Kevin Swersky, Daniel Tarlow, Ilya Sutskever, Ruslan Salakhutdinov, Richard S. Zemel and **Ryan P.**

- Adams.** Cardinality Restricted Boltzmann Machines. *Advances in Neural Information Processing Systems 25 (NIPS 2012)*.
- 2012 Daniel Tarlow, Kevin Swersky, Richard S. Zemel, **Ryan P. Adams** and Brendan J. Frey. Fast Exact Inference for Recursive Cardinality Models. *Proceedings of the 28th Conference on Uncertainty in Artificial Intelligence (UAI 2012)*.
- 2012 Shamim Nemati, Li-Wei H. Lehman, **Ryan P. Adams** and Atul Malhotra. Discovering Shared Cardiovascular Dynamics Within a Patient Cohort. *Proceedings of the 34th International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC 2012)*.
- 2012 Li-Wei H. Lehman, Shamim Nemati, **Ryan P. Adams** and Roger G. Mark. Discovering Shared Dynamics in Physiological Signals: Application to Patient Monitoring in ICU. *Proceedings of the 34th International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC 2012)*.
- 2012 George E. Dahl, **Ryan P. Adams** and Hugo Larochelle. Training Restricted Boltzmann Machines on Word Observations. *Proceedings of the 29th International Conference on Machine Learning (ICML 2012)*. [arXiv:1202.5695](#) [[stat.ML](#)]
- 2012 Daniel Tarlow and **Ryan P. Adams**. Revisiting Uncertainty in Graph Cut Solutions. *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR 2012)*.
- 2012 Jeroen C. Chua, Inmar E. Givoni, **Ryan P. Adams** and Brendan J. Frey. Learning Hierarchical Patch Models that Factorize Shape and Colour. *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR 2012)*.
- 2012 Daniel Tarlow, **Ryan P. Adams** and Richard S. Zemel. Randomized Optimum Models for Structured Prediction. *Proceedings of the 15th International Conference on Artificial Intelligence and Statistics (AISTATS 2012)*.
- 2012 Jasper Snoek, **Ryan P. Adams** and Hugo Larochelle. On Nonparametric Guidance for Learning Autoencoder Representations. *Proceedings of the 15th International Conference on Artificial Intelligence and Statistics (AISTATS 2012)*. [arXiv:1106.1925](#) [[stat.ML](#)]
- 2010 **Ryan P. Adams**, Zoubin Ghahramani and Michael I. Jordan. Tree-Structured Stick Breaking for Hierarchical Data. *Advances in Neural Information Processing Systems 23 (NIPS 2010)*. [arXiv:1006.1062](#) [[stat.ME](#)]
- 2010 Iain Murray and **Ryan P. Adams**. Slice Sampling Covariance Hyperparameters of Latent Gaussian Models. *Advances in Neural Information Processing Systems 23 (NIPS 2010)*. [arXiv:1006.0868](#) [[stat.CO](#)]
- 2010 **Ryan P. Adams**, George E. Dahl and Iain Murray. Incorporating Side Information into Probabilistic Matrix Factorization with Gaussian Processes. *Proceedings of the 26th Conference on Uncertainty in Artificial Intelligence (UAI 2010)*. [arXiv:1003.4944](#) [[stat.ML](#)]
- 2010 **Ryan P. Adams**, Hanna M. Wallach and Zoubin Ghahramani. Learning the Structure of Deep Sparse Graphical Models. *Proceedings of the 13th International Conference on Artificial Intelligence and Statistics (AISTATS 2010)*. [arXiv:1001.0160](#) [[stat.ML](#)] **Winner of Best Paper Award**
- 2010 Iain Murray, **Ryan P. Adams** and David J.C. MacKay. Elliptical Slice Sampling. *Proceedings of the 13th International Conference on Artificial Intelligence and Statistics (AISTATS 2010)*. [arXiv:1001.0175](#) [[stat.CO](#)]
- 2009 **Ryan P. Adams** and Zoubin Ghahramani. Archipelago: Nonparametric Bayesian Semi-Supervised Learning. *Proceedings of the 26th International Conference on Machine Learning (ICML 2009)*. **Honorable Mention for Best Paper Award**
- 2009 **Ryan P. Adams**, Iain Murray and David J.C. MacKay. Tractable Nonparametric Bayesian Inference in Poisson Processes with Gaussian Process Intensities. *Proceedings of the 26th International Conference on Machine Learning (ICML 2009)*. **Honorable Mention for Best Student Paper Award**

- 2009 **Ryan P. Adams**, Iain Murray and David J.C. MacKay. The Gaussian Process Density Sampler. *Advances in Neural Information Processing Systems 22 (NIPS 2008)*.
- 2008 **Ryan P. Adams** and Oliver Stegle. Gaussian Process Product Models for Nonparametric Nonstationarity. *Proceedings of the 25th International Conference on Machine Learning (ICML 2008)*.

Invited Discussions

- 2011 Iain Murray and **Ryan P. Adams**. Discussion of “Riemann manifold Langevin and Hamiltonian Monte Carlo methods” by Mark Girolami and Ben Calderhead. *Journal of the Royal Statistical Society: Series B (Statistical Methodology)*, 73(2):123-214.

Technical Reports

- 2013 Dan Lovell, Jonathan Malmaud, **Ryan P. Adams**, and Vikash K. Mansinghka. ClusterCluster: Parallel Markov Chain Monte Carlo for Dirichlet Process Mixtures. [arXiv:1304.2302](https://arxiv.org/abs/1304.2302) [[stat.ML](#)]
- 2013 Oren Rippel and **Ryan P. Adams**. High-Dimensional Probability Estimation with Deep Density Models. [arXiv:1302.5125](https://arxiv.org/abs/1302.5125) [[stat.ML](#)]
- 2011 **Ryan P. Adams** and Richard S. Zemel. Ranking via Sinkhorn Propagation. [arXiv:1106.1922](https://arxiv.org/abs/1106.1922) [[stat.ML](#)]
- 2010 **Ryan P. Adams**, Iain Murray and David J.C. MacKay. Nonparametric Bayesian Density Modeling with Gaussian Processes. [arXiv:0912.4896](https://arxiv.org/abs/0912.4896) [[stat.CO](#)]
- 2007 **Ryan P. Adams** and David J.C. MacKay. Bayesian Online Changepoint Detection. [arXiv:0710.3742](https://arxiv.org/abs/0710.3742) [[stat.ML](#)]

Patents

- 2016 Methods for Biological Analytes Separation and Identification. Filed March 2016.
- 2015 Organic Light-Emitting Diode Materials. Filed May 2015.
- 2015 Methods for Biological Analytes Separation and Identification. Filed March 2015.
- 2014 Bayesian Optimization Using Integrated Acquisition Functions. With Jasper Snoek and Hugo Larochelle. Filed May 2014.
- 2014 Parallelized Bayesian Optimization. With Jasper Snoek and Hugo Larochelle. Filed May 2014.
- 2014 Bayesian Optimization Using Non-Linear Warping. With Jasper Snoek, Kevin Swersky and Richard Zemel. Filed May 2014.
- 2014 Multi-Task Bayesian Optimization. With Jasper Snoek and Kevin Swersky. Filed May 2014.