Ryan P. Adams

Department of Computer Science
Princeton University
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Academic Positions

2017– Professor of Computer Science
Department of Computer Science, Princeton University
Associate Department Chair, Computer Science
Co-director of AI^2 Initiative
Core Faculty, Center for Statistics and Machine Learning
Associated Faculty, Program in Applied and Computational Mathematics

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

2016–2018 Research Scientist
Google Brain

2015–2016 Head of Advanced Technologies Group
Twitter

2013–2015 Co-Founder and CEO
Whetlab LLC (Acquired by Twitter in June 2015)

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

2024 ACS GCIPR Data Sciences and Modeling Award for Green Chemistry *(with Richard Fox and others)*

2015 Alfred P. Sloan Fellowship

2014 Best Paper, 30th Conference on Uncertainty in Artificial Intelligence *(first author Dougal Maclaurin)*

2014 Honorable Mention, IEEE Micro Top Picks *(first author Amos Waterland)*

2012 DARPA Young Faculty Award

2010 Best Paper, 13th International Conference on Artificial Intelligence and Statistics

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

2009 Honorable Mention, Best Student Paper, 26th International Conference on Machine Learning

Recent Teaching

Fall 2023 Princeton University COS302/SML305, *Mathematics for Numerical Computation and Machine Learning*

Spring 2023 Princeton University COS598C, *Artificial Mechanical Intelligence*

Fall 2022 Princeton University COS302/SML305, *Mathematics for Numerical Computation and Machine Learning*

Outside Activities

2015-16 Co-host, *Talking Machines* podcast: http://www.thetalkingmachines.com/

Reviewing & Service

Editorial Boards

2021– Co-editor of *Harvard Data Science Review*

2017–24 Action Editor of *Journal of Machine Learning Research* (JMLR)

2017–19 Associate Editor of *IEEE Transactions on Pattern Analysis and Machine Intelligence*

2013–17 Associate Editor of *Statistics and Computing*

2012 Guest Editor of *IEEE Transactions on Pattern Analysis and Machine Intelligence* Special Issue on Bayesian Nonparametrics

Senior Program Committees

2019,21,24 Senior Area Chair, International Conference on Machine Learning (ICML)

2023 Senior Area Chair, International Conference on Artificial Intelligence and Statistics (AISTATS)

2020 NeurIPS Workshop on Engineering Modeling, Simulation, and Design

2018,20 Senior Area Chair, Neural Information Processing Systems (NeurIPS)

2020 General Co-Chair, Conference on Uncertainty in Artificial Intelligence (UAI)

2019 Program Co-Chair, Conference on Uncertainty in Artificial Intelligence (UAI)

2017,18 Financial Co-Chair, International Conference on Machine Learning (ICML)

2014,17 Area Chair, Neural Information Processing Systems (NeurIPS)
2017 Area Chair, AAAI Conference on Artificial Intelligence (AAAI)
2012,17 Area Chair, International Conference on Artificial Intelligence and Statistics (AISTATS)
2014–17 Steering Committee, New England Machine Learning Day
2014–16 Area Chair, International Conference on Machine Learning (ICML)
2012,16 Area Chair, Conference on Uncertainty in Artificial Intelligence (UAI)
2016 Area Chair, International Conference on Learning Representations (ICLR)

Journal Reviewing

Nature Communications; Proceedings of the National Academy of Sciences; 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 Learning Representations (ICLR); International Conference on Machine Learning (ICML); International Conference on Artificial Intelligence and Statistics (AISTATS); Advances in Neural Information Processing Systems (NeurIPS); 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 Princeton and Harvard

2023– Co-director, Initiative on AI for Accelerating Invention (AI^2)
2023– Associate Chair, Computer Science Department
2020–21 Computer Science Director of Graduate Admissions
2019– Executive Committee, Center for Statistics and Machine Learning
2018–24 Director of the Undergraduate Program in Statistics and Machine Learning
2013–14 Applied Mathematics Committee for Undergraduate Studies (Harvard)
2013 Herchel Smith Undergraduate Research Fellowship Review and Selection Committee (Harvard)
2012–13 Neurobiology Standing Committee for Harvard College
2011–2012 Advisory Board for SEAS Graduate Program in Computational Science and Engineering (Harvard)

Invited Talks

Recent Research Talks

12 Jun 2024 UC Berkeley, Simons Institute
10 Jan 2024 Aspen Center for Physics, Workshop on Computing with Physical Systems

28 Feb 2023 Aspen Center for Physics, Workshop on Theoretical Physics and ML
13 Feb 2023 AAAI Workshop on AI for Science and Engineering, Washington DC
31 Oct 2022 PACM, Princeton University
31 Aug 2022 MLSys Conference, Santa Clara, California
1 Jun 2022 Flatiron Institute, New York
14 Dec 2021 NeurIPS Workshop on AI and Programming Languages
20 Oct 2021 Princeton Catalyst Initiative
25 Feb 2021 Microsoft Research
26 Mar 2021 Siemens
7 Dec 2020 UC Santa Cruz
4 Mar 2021 Ansys

Invited Tutorials

18 Jun 2018 *Deep Probabilistic Models*
Buenos Aires Machine Learning Summer School

7 May 2018 *Introduction to Machine Learning*
Federal Reserve Bank of Atlanta

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
2019–21 Benjamin Shields (co-advised with Abigail Doyle)
2021–24 Seyed Mehran Mirramezani, Computing Innovation Fellow
2022–24 Eder Medina
2022– Jenny Ni Zhan
2024– Cyrill Bösch

Primary Advisor

2012–15 Michael Gelbart, Harvard Biophysics
2013–16 Dougal Maclaurin, Harvard Physics
2012–16 Oren Rippel, MIT Mathematics
2014–17 Ardavan Saeedi, MIT EECS
2012–18 Andrew Miller, Harvard Computer Science
2014–18 Yakir Reshef, Harvard Computer Science, MD/PhD
2017–20 Jordan Ash, Princeton Computer Science
2017–21 Alexander Beatson, Princeton Computer Science
2017–21 Ari Seff, Princeton Computer Science
2018–22 Jad Rahme, Princeton Applied Mathematics
2019–24 Deniz Oktay, Princeton Computer Science
2018– Geoffrey Roeder, Princeton Computer Science
2019– Joshua Aduol, Princeton Computer Science
2020– Nicholas Richardson, Princeton Computer Science
2020– Olga Solodova, Princeton Computer Science
2021– Alex Guerra, Princeton Computer Science
2023– Kathryn Wantlin, Princeton Computer Science
2023– Cindy Zhang, Princeton Computer Science
2023– Yaqian Tang, Princeton Applied Mathematics
2024– Daniel Williams, Princeton Computer Science
2024– Sowmya Thanvantri, Princeton Computer Science

Co-Advisor / Secondary Supervisor

2012–14 Elaine Angelino, Harvard Computer Science with Margo Seltzer
2013–16 Scott Linderman, Harvard Computer Science with Leslie Valiant
2012–17 SueYeon Chung, Harvard Applied Physics with Haim Sompolinsky
2019–22 Tianju Xue, Princeton Civil Engineering with Sigrid Adriaenssens
2017–23 Diana Cai, Princeton Computer Science with Barbara Engelhardt

2019–23 Sulin Liu, Princeton Electrical Engineering with Peter Ramadge
2019–24 Samuel Barnett, Princeton Computer Science with Tom Griffiths
2019–23 Xingyuan Sun, Princeton Computer Science with Szymon Rusinkiewicz

Publications

Journal Papers

2024 Giovanni Bordiga, Eder Medina, Sina Jafarzadeh, Cyrill Bösch, **Ryan P. Adams**, Vincent Tournat, and Katia Bertoldi. Automated Discovery of Reprogrammable Nonlinear Dynamic Metamaterials. *Nature Materials*.

2024 Andrew Novick, Diana Cai, Quan Nguyen, Roman Garnett, **Ryan P. Adams**, and Eric Toberer. Probabilistic Prediction of Material Stability: Integrating Convex Hulls into Active Learning. *Materials Horizons*.

2024 Mehran Mirramezani, Deniz Oktay, and **Ryan P. Adams**. A Rapid and Automated Computational Approach to the Design of Multistable Soft Actuators. *Computer Physics Communications*. 298, 109090.

2023 Michael Li, Fred Callaway, William Thompson, **Ryan P. Adams**, and Tom Griffiths. Learning to Learn Functions. *Cognitive Science*. 47(4).

2022 Jose Garrido Torres, Sii Hong Lau, Pranay Anchuri, Jason Stevens, Jason, Jose Tabora, Jun Li, Alina Borovika, **Ryan P. Adams**, and Abigail G. Doyle. A Multi-Objective Active Learning Platform and Web App for Reaction Optimization. *Journal of the American Chemical Society*. 144(43), 19999-20007

2021 Benjamin J. Shields, Jason Stevens, Jun Li, Marvin Parasram, Farhan Damani, Jesus I. Martinez Alvarado, Jacob M. Janey, **Ryan P. Adams**, and Abigail G. Doyle. Bayesian reaction optimization as a tool for chemical synthesis. *Nature*. 590, 89-96.

2020 Tianju Xue, Alex Beatson, Maurizio Chiaramonte, Geoffrey Roeder, Jordan T. Ash, Yigit Menguc, Sigrid Adriaenssens, **Ryan P. Adams**, and Sheng Mao. A data-driven computational scheme for the nonlinear mechanical properties of cellular mechanical meta-materials under large deformation. *Soft Matter*. 16, 7524-7534.

2019 Jeffrey Regier, Andrew C. Miller, David Schlegel, **Ryan P. Adams**, Jon D. McAuliffe, and Prabhat. Approximate inference for constructing astronomical catalogs from images. *Annals of Applied Statistics*. 13(3): 1884-1926.

2019 Jennifer N. Wei, David Belanger, **Ryan P. Adams**, and D. Sculley. Rapid Prediction of Electron–Ionization Mass Spectrometry Using Neural Networks. *ACS Central Science*. 5(4): 700-708.

2018 Yakir A. Reshef, Hilary Finucane, David R. Kelley, Alexander Gusev, Dylan Kotliar, Jacob C. Ulirsch, Farhad Hormozdiari, Joseph Nasser, Luke O'Connor, Bryce van de Geijn, Po-Ru Loh, Shari Grossman, Gaurav Bhatia, Steven Gazal, Pier Francesco Palamara, Luca Pinello, Nick Patterson, **Ryan P. Adams**, and Alkes Price. Detecting genome-wide directional effects of transcription factor binding on polygenic disease risk. *Nature Genetics*. 50: 1483–1493.

2018 Rafael Gómez-Bombarelli, Jennifer Wei, David Duvenaud, Jose-Miguel Hernández-Lobato, Benjamin Sánchez-Lengeling, Dennis Sheberla, Jorge Aguilera-Iparraguirre, Timothy Hirzel, **Ryan P. Adams**, and Alán Aspuru-Guzik. Automatic Chemical Design Using a Data-Driven Continuous Representation of Molecules. *ACS Central Science*. 4(2):268-276.

2016 Vinayak Rao, **Ryan P. Adams** and David Dunson. Bayesian Inference for Matérn Repulsive Processes. *Journal of the Royal Statistical Society: Series B (Statistical Methodology)*. 79(3):877-897.

2016 Jonathan William Hennek, Ashok A. Kumar, Alexander B. Wiltschko, Matthew Patton, Si Yi Ryan Lee, Carlo Brugnara, **Ryan P. Adams**, and George M Whitesides. Diagnosis of Iron Deficiency Anemia Using Density-based Fractionation of Red Blood Cells. *Lab on a Chip*. 16:3929-3939.

2016 Rafael Gómez-Bombarelli, Jorge Aguilera-Iparraguirre, Timothy D. Hirzel, David Duvenaud, Dougal Maclaurin, Martin A. Blood-Forsythe, Hyun Sik Chae, Markus Einzinger, Dong-Gwang Ha, Tony Wu, Georgios Markopoulos, Soonok Jeon, Hosuk Kang, Hiroshi Miyazaki, Masaki Numata, Sunghan Kim, Wenliang Huang, Seong Ik Hong, Marc Baldo, **Ryan P. Adams**, and Alán Aspuru-Guzik. Design of Efficient Molecular Organic Light-emitting Diodes by a High-throughput Virtual Screening and Experimental Approach. *Nature Materials*. 15:1120–1127.

2016 Elaine Angelino, Matthew J. Johnson, and **Ryan P. Adams**. Patterns of Scalable Bayesian Inference. *Foundations and Trends in Machine Learning*. 9(2-3):119-247.

2016 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.

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. *Journal of Machine Learning Research*. 17:1-53.

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 Li-Wei H. Lehman, **Ryan P. Adams**, Louis Mayaud, Geor ge 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.

2013 Henry T.K. Tse, Daniel R. Gossett, Yo Sup Moon, Mahdokht Masaeli, 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

2016 Daniel Tarlow, Alexander Gaunt, **Ryan P. Adams**, and Richard Zemel. Factorizing Shortest Paths with Randomized Optimum Models. In Tamir Hazan, George Papandreou, Daniel Tarlow (Eds.), *Perturbations, Optimization, and Statistics*. MIT Press.

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 Recognitison. In R. Cipolla, S. Battiato & G. M. Farinella (Eds.), *Machine Learning for Computer Vision*, Studies in Computational Intelligence. Berlin: Springer.

Peer Reviewed Conference Papers

2024 Sulin Liu, Peter Ramadge and **Ryan P. Adams**. Generative Marginalization Models. In *International Conference on Machine Learning (ICML)*.

2024 Nick Richardson, Deniz Oktay, Yaniv Ovadia, James C Bowden and **Ryan P. Adams**. Fiber Monte Carlo. In *International Conference on Learning Representations (ICLR)*.

2023 Xingyuan Sun, Geoffrey Roeder, Tianju Xue, **Ryan P. Adams** and Szymon Rusinkiewicz. More Stiffness with Less Fiber: End-to-End Fiber Path Optimization for 3D-Printed Composites. In *ACM Symposium on Computational Fabrication*.

2023 Xingyuan Sun, Chenyue Cai, **Ryan P. Adams** and Szymon Rusinkiewicz Gradient-Based Dovetail Joint Shape Optimization for Stiffness. In *ACM Symposium on Computational Fabrication*.

2023 Deniz Oktay, Mehran Mirramezani, Eder Medina, and **Ryan P. Adams**. Neuromechanical Autoencoders: Learning to Couple Elastic and Neural Network Nonlinearity. In *International Conference on Learning Representations (ICLR)*.

2022 Diana Cai and **Ryan P. Adams**. Multi-Fidelity Markov Chain Monte Carlo: A Pseudo-Marginal Approach. In *Advances in Neural Information Processing Systems 35 (NeurIPS)*.

2021 Jad Rahme, Dibya Ghosh, Aviral Kumar, Amy Zhang, **Ryan P. Adams**, and Sergey Levine. Understanding Generalization in RL via the Epistemic POMDP. *Advances in Neural Information Processing Systems 34 (NeurIPS)*.

2021 Xingyuan Sun, Tianju Xue, Szymon Rusinkiewicz, and **Ryan P. Adams**. Amortized Synthesis of Constrained Configurations Using a Differentiable Surrogate. *Advances in Neural Information Processing Systems 34 (NeurIPS)*.

2021 David M. Zoltowski, Diana Cai, and **Ryan P. Adams**. Slice sampling reparameterization gradients. *Advances in Neural Information Processing Systems 34 (NeurIPS)*.

2021 Gregory W. Gundersen, Diana Cai, Chuteng Zhou, Barbara E. Engelhardt, and **Ryan P. Adams**. Active multi-fidelity Bayesian online changepoint detection. *Proceedings of the 37th Conference on Uncertainty in Artificial Intelligence (UAI)*.

2021 Deniz Oktay, Nick McGreivy, Joshua Aduol, Alex Beatson, and **Ryan P. Adams**. Randomized Automatic Differentiation. *International Conference on Learning Representations (ICLR)*.

2020 Sulin Liu, Xingyuan Sun, Peter J. Ramadge and **Ryan P. Adams**. Task-Agnostic Amortized Inference of Gaussian Process Hyperparameters. *Advances in Neural Information Processing Systems 33 (NeurIPS)*.

2020 Jordan T. Ash and **Ryan P. Adams**. On warm-starting neural network training. *Advances in Neural Information Processing Systems 33 (NeurIPS)*.

2020 Alex Beatson, Jordan T. Ash, Geoffrey Roeder, Tianju Xue, and **Ryan P. Adams**. Learning Composable Energy Surrogates for PDE Order Reduction. *Advances in Neural Information Processing Systems 33 (NeurIPS)*.

2020 Tianju Xue, Alex Beatson, Sigrid Adriaenssens, and **Ryan P. Adams**. Amortized Finite Element Analysis for Fast PDE-Constrained Optimization. *Proceedings of the 37th International Conference on Machine Learning (ICML)*.

2020 Yucen Luo, Alex Beatson, Mohammad Norouzi, Jun Zhu, David Duvenaud, **Ryan P. Adams**, and Ricky T. Q. Chen. SUMO: Unbiased Estimation of Log Marginal Probability for Latent Variable Models. In

Proceedings of the Eighth International Conference on Learning Representations.

2019 Igor Fedorov, **Ryan P. Adams**, Matthew Mattina, and Paul N. Whatmough. SpArSe: Sparse Architecture Search for CNNs on Resource-Constrained Microcontrollers. In *Advances in Neural Information Processing Systems 32 (NeurIPS)*.

2019 Ari Seff, Wenda Zhou, Farhan Damani, Abigail Doyle, and **Ryan P. Adams**. Discrete Object Generation with Reversible Inductive Construction. In *Advances in Neural Information Processing Systems 32 (NeurIPS)*.

2019 Alex Beatson and **Ryan P. Adams**. Efficient Optimization of Loops and Limits with Randomized Telescoping Sums. In *Proceedings of the 36th International Conference on Machine Learning (ICML)*.

2019 Wenda Zhou, Victor Veitch, Morgane Austern, **Ryan P. Adams**, and Peter Orbanz. Non-Vacuous Generalization Bounds at the ImageNet Scale: A PAC-Bayesian Compression Approach. In *International Conference on Learning Representations (ICLR)*.

2018 Diana Cai, Michael Mitzenmacher, and **Ryan P. Adams**. A Bayesian Nonparametric View on Count-Min Sketch. In *Advances in Neural Information Processing Systems 31 (NeurIPS)*.

2018 Ardavan Saeedi, Matthew D. Hoffman, Stephen J. DiVerdi, Asma Ghandeharioun and Matthew J. Johnson and **Ryan P. Adams**. Multimodal Prediction and Personalization of Photo Edits with Deep Generative Models. In *Proceedings of the 21st International Conference on Artificial Intelligence and Statistics (AISTATS)*.

2017 Andrew Miller, Nicholas J. Foti, Alexander d'Amour, and **Ryan P. Adams**. Reducing Reparameterization Gradient Variance. In *Advances in Neural Information Processing Systems 30 (NeurIPS)*.

2017 Jonathan Huggins, **Ryan P. Adams**, and Tamara Broderick. PASS-GLM: Polynomial Approximate Sufficient Statistics for Scalable Bayesian GLM Inference. In *Advances in Neural Information Processing Systems 30 (NeurIPS)*.

2017 Andrew Miller, Nicholas J. Foti, and **Ryan P. Adams**. Variational Boosting: Iteratively Refining Posterior Approximations. In *Proceedings of the 34th International Conference on Machine Learning (ICML)*.

2017 Scott W. Linderman, Matthew J. Johnson, Andrew C. Miller, **Ryan P. Adams**, David M. Blei, and Liam Paninski. Recurrent Switching Linear Dynamical Systems. In *Proceedings of the 20th International Conference on Artificial Intelligence and Statistics (AISTATS)*

2016 Scott W. Linderman, **Ryan P. Adams**, and Jonathan Pillow. Bayesian Latent Structure Discovery from Multi-neuron Recordings. In *Advances in Neural Information Processing Systems 29 (NeurIPS)*.

2016 Matthew J. Johnson, David Duvenaud, Alexander B. Wiltschko, Sandeep R. Datta, and **Ryan P. Adams**. Composing Graphical Models with Neural Networks for Structured Representations and Fast Inference. In *Advances in Neural Information Processing Systems 29 (NeurIPS)*.

2016 Daniel Hernández-Lobato, José Miguel Hernández-Lobato, Amar Shah, and **Ryan P. Adams**. Predictive Entropy Search for Multi-objective Bayesian Optimization. In *Proceedings of the 33rd International Conference on Machine Learning (ICML)*.

2016 Ardavan Saeedi, Matthew Hoffman, Matthew Johnson, and **Ryan P. Adams**. The Segmented iHMM: A Simple, Efficient Hierarchical Infinite HMM. In *Proceedings of the 33rd International Conference on Machine Learning (ICML)*.

2016 Qian Wan, **Ryan P. Adams** and Robert D. Howe. Variability and Predictability in Tactile Sensing During Grasping. In *Proceedings of the IEEE International Conference on Robotics and Automation (ICRA)*.

2016 Dougal Maclaurin, David Duvenaud and **Ryan P. Adams**. Early Stopping is Nonparametric Variational Inference. In *Proceedings of the International Conference on Artificial Intelligence and Statistics (AISTATS)*.

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 (NeurIPS)*.

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 (NeurIPS)*.

2015 Oren Rippel, Jasper Snoek and **Ryan P. Adams**. Spectral Representations for Convolutional Neural Networks. In *Advances in Neural Information Processing Systems 28 (NeurIPS)*.

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 (NeurIPS)*.

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 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 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 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 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 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)*.

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 (NeurIPS)*.

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 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 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 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 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 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 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 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 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 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 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)*.

2013 Nils Napp and **Ryan P. Adams**. Message Passing Inference with Chemical Reaction Networks. *Advances in Neural Information Processing Systems 26 (NeurIPS)*.

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 (NeurIPS)*.

2013 Jasper Snoek, Kevin Swersky and **Ryan P. Adams**. Multi-Task Bayesian Optimization. *Advances in Neural Information Processing Systems 26 (NeurIPS)*.

2013 James Zou, Daniel Hsu, David Parkes and **Ryan P. Adams**. Contrastive Learning Using Spectral Methods. *Advances in Neural Information Processing Systems 26 (NeurIPS)*.

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 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 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 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 Eyal Dechter, Jonathan Malmaud, **Ryan P. Adams** and Joshua Tenenbaum. Boostrap Learning Via Modular Concept Discovery. *Proceedings of the 23rd International Joint Conference on Artificial Intelligence (IJCAI)*.

2012 Jasper Snoek, Hugo Larochelle and **Ryan P. Adams**. Practical Bayesian Optimization of Machine Learning Algorithms. *Advances in Neural Information Processing Systems 25 (NeurIPS)*.

2012 James Zou and **Ryan P. Adams**. Priors for Diversity in Generative Latent Variable Models. *Advances in Neural Information Processing Systems 25 (NeurIPS)*.

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