Akash Srivastava

General Information

Affiliation	MIT-IBM AI Lab, IBM Research, University of Edinburgh
Contact	akashsri@mit.edu

Education

2014–2018	**PhD**, *ILCC and ANC*, University of Edinburgh, UK. Variational Inference in Deep Generative Models. Under Dr Charles Sutton and Dr Michael U. Gutmann
2013–2014	**MSc Informatics**, University of Edinburgh, *Distinction*. Machine Learning, Data Science and Natural Language Processing. Thesis under Dr Victor Lavrenko
2009–2013	**BSc Artificial Intelligence and Computer Science**, University of Sheffield, *First Class Honours*. Thesis under Prof. Fabio Ciravegna and Dr Trevor Cohn

Experience

Current Role	**Research Scientist**, *MIT-IBM Watson AI Lab, Cambridge, MA*, Research Area: Unsupervised Learning, Deep Generative Models, Density Ratio Estimation, Contrastive Learning and Variational Inference.
Feb-March (2018)	**Visiting Researcher**, *RIKEN Center for Advanced Intelligence Project, Tokyo, Japan*, Amortized Variational Inference. Hosted by Emtiyaz Khan.
July-Sept (2017)	**Research Intern**, *Microsoft Research, Cambridge, UK*, Variational inference in web scale unsupervised learning problems in text. Under John Winn.
2015–2016	**Tutor**, *Research Methods*, Informatics Forum. Tutored MSc students in the Machine Learning Degree.
2013	**Summer Research Intern**, *OAK Group*, University of Sheffield. Developed a novel method for real-time detection of events with low statistical support in Twitter stream to be used for crowd control in music festival. Under Fabio Ciravegna.
2011–2012	**Intern**, *Microsoft Technology Center*, Reading, UK. Whitecoat Award.

Grants

Co-PI	**DARPA: Machine Common Sense**, *$12.5M*, 4 Years, Lead by Josh Tenenbaum (MIT) and Dan Gutfreund (IBM).

Co-PI **MIT-IBM: Learning Priors for Transfer**, *$0.75M*, 3 Years, In collaboration with Pulkit Agarwal (MIT).

Scholarships and Awards

PhD Xerox Rank Scholarship

PhD School of Informatics Scholarship

PhD ICLR Travel Award, 2017

PhD NIPS Travel Award, 2017

MSc Informatics Global Scholarship

Bsc Sheffield Global Scholarship

Publications

- Akash Srivastava*, Kai Xu*, Michael U. Gutmann and Charles Sutton. Generative Ratio Matching Networks. ICLR, 2020

- Cole Hurwitz, Kai Xu, Akash Srivastava and Matthias Henning. Scalable Spike Source Localization in Extracellular Recordings using Amortized Variational Inference. NeurIPS, 2019

- Kai Xu, Akash Srivastava and Charles Sutton. Variational Russian Roulette for Deep Bayesian Nonparametrics. ICML, 2019.

- Lazar Valkov, Dipak Chaudhari, Akash Srivastava, Swarat Chaudhuri and Charles Sutton. Synthesis of Differentiable Functional Programs for Lifelong Learning. NIPS, 2018.

- Mohammad Emtiyaz Khan, Zuozhu Liu, Voot Tangkaratt, Didrik Nielsen, Yarin Gal, Akash Srivastava. Vadam: Fast and Scalable Variational Inference by Perturbing Adam. ICML, 2018.

- Akash Srivastava, Lazar Valkov, Chris Russell, Michael U. Gutmann and Charles Sutton. VEEGAN: Reducing Mode Collapse in GANs using Implicit Variational Learning. NIPS, 2017.

- Akash Srivastava and Charles Sutton. Autoencoding Variational Inference for Topic Models. ICLR, 2017.

- Akash Srivastava, James Zou, Ryan P. Adams, and Charles Sutton. Clustering with a Reject Option: Interactive Clustering as Bayesian Prior Elicitation. IDEA Workshop, KDD, 2016 (**Oral**).

Preprints

- Seungwook Han*, Akash Srivastava*, Cole Lincoln Hurwitz*, Prasanna Sattigeri, David Daniel Cox. not-so-big-GAN: Generating High-Fidelity Images on Small Compute with Wavelet-based Super-Resolution, 2020.

- Kai Xu*, Akash Srivastava*, Dan Gutfreund, Felix Sosa, Tomer Ullman, Joshua B. Tenenbaum and Charles Sutton. A Bayesian-Symbolic Approach to Learning and Reasoning for Intuitive Physics, 2020.

- Akash Srivastava*, Yamini Bansal*, Yukun Ding*, Cole Hurwitz*, Kai Xu, Prasanna Sattigeri, Bernard Egger, Josh Tenenbaum, David D. Cox and Dan Gutfreund. Improving the Reconstruction of Disentangled Representation Learners via Multi-Stage Modelling, 2020.
- Akash Srivastava*, Jessie Rosenberg*, Dan Gutfreund and David D. Cox. SimVAE: Simulator-Assisted Training for Interpretable Generative Models, 2019.
- Akash Srivastava, Kristjan Greenewald and Farzaneh Mirzazadeh. BreGMN: scaled-Bregman Generative Modeling Networks, 2019.
- Akash Srivastava and Charles Sutton. Deep Pachinko Allocation Machine, 2019.

Thesis and Technical Reports

- Akash Srivastava. Burst Detection Modulated Document Clustering: A Partially Feature-Pivoted Approach To First Story Detection. Masters Thesis, 2014 under Dr Victor Lavrenko.
- Akash Srivastava. Event Detection in Twitter for Music Festivals. Internal Technical Report, 2013.
- Akash Srivastava. Question Detection in Twitter. BSc Thesis, 2013 under Prof. Fabio Ciravegna.

Patents

- Akash Srivastava, Jessie Rosenberg, Dan Gutfreund and David D. Cox. SimVAE: Simulator-Assisted Training for Interpretable Generative Models.

Professional Service

- Program Committee member for NeurIPS, ICML, ICLR, JMLR, ACL, IEEE Transactions on Pattern Analysis and Machine Intelligence.