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Current position

Senior Research Scientist, Google, Machine Perception

Previous experience

2016-2018	*Software Engineer*, Google, Mountain View, CA.
2015-2016	*Postodoc*, Disney Research, Boston
2009-2015	*Research Associate*, Laboratory of Atomic and Solid-State Physics (LASSP), Cornell
2015	*Research Intern*, Google, Mountain View, CA.
2014	*Research Intern*, Disney Reseach, Boston.

Areas of specialization

Information Theory & Deep Learning • Physics • Machine Learning • Python Programming

Education

2015	PhD in Physics, Cornell with Jim Sethna
2013	MSc in Physics, Cornell
2009	BSc in Physics, California Institute of Technology (Caltech)

Publications & talks

2020c   WR Morningstar, C Ham, AG Gallagher, B Lakshminarayanan, AA Alemi, JV Dillon "Density of States Estimateion for Out-of-Distribution Detection", arXiv:2006.09273

2020b   DS Karls, M Bierbaum, AA Alemi, RS Elliot, JP Sethna, EB Tadmor "The OpenKIM Processing Pipeline: A Cloud-Based Automatic Materials Property Computation Engine", *ChemPhys* arXiv:2002.05380

2020a   I Fischer, AA Alemi "CEB Improves Model Robustness", arXiv:2002.05380

2019h   R Novak, L Xiao, J Hron, J Lee, AA Alemi, J Sohl-Dickstein, SS Schoenholz "Neural Tangents: Fast and Easy Infinite Neural Networks in Python", *ICLR 2020* arXiv:1912.02803

2019g   AA Alemi "Variational Predictive Information Bottleneck", arXiv:1910.10831

2019f   R Shwartz-Ziv, AA Alemi "Information in Infinite Ensembles of Infinitely-Wide Networks", *AABI* arXiv:1911.09189

2019e   Z Dong, D Oktay, B Poole, AA Alemi "On Predictive Information in RNNs", arXiv:1910.09578

2019e   T Conte, E DeBenedictis, N Ganesh, T Hylton, JP Strachan, RS Williams, AA Alemi, L Altenberg, G Crooks, J Crutchfield, L del Rio, J Deutsch, M DeWeese, K Douglas, M Esposito, M Frank, R Fry, P Harsha, M Hill, C Kello, J Krichmar, S Kumar, SC Liu, S Lloyd, M Marsili, I Nemenman, A Nugent, N Packard, D Randall, P Sadowski, N Santhanam, R Shaw, A Stieg, E Stopnitzky, C Teuscher, C Watkins, D Wolpert, J Yang, Y Yufik, "Thermodynamic Computing", *CCC* arXiv:1911.01968

2019d   B Seybold, E Fertig, A Alemi, I Fischer, "Dueling Decoders: Regularizing Variational Autoencoder Latent Spaces", arXiv:1905.07478

2019c   I Fischer, A Alemi, JV Dillon, TFP Team, "Variational Autoencoders with Tensorflow Probability Layers", *Tensorflow Blog*

2019b   B Poole, S Ozair, A van den Oord, AA Alemi, G Tucker, "On Variational Bounds of Mutual Information", *ICML 2019* arXiv:1905.06922

2019a   CB Clement, M Bierbaum, KP O'Keeffe, AA Alemi, "On the Use of ArXiv as a Dataset", *ICLR 2019 workshop RLGM* arXiv:1905.00075

2018f   AA Alemi, JV Dillon, I Fischer, "Uncertainty in the Variational Information Bottleneck", *UAI 2018 workshop on Uncertainty in Deep Learning, contributed oral* arXiv:1807.00906

2018e   AA Alemi, I Fischer, "TherML: Thermodynamics of Machine Learning", *ICML 2018 Workshop, contributed oral.*

2018d   AA Alemi, I Fischer, "GILBO: One Metric to Measure Them All", *NIPS 2018 Spotlight* arXiv:1802.04874

2018c   JV Dillon, I Langmore, D Tran, E Brevdo, S Vasudevan, D Moore, B Patton, A Alemi, M Hoffman, RA Saurous, "TensorFlow Distributions", *arXiv:1711.10604*

2018b   S Abu-El-Haija, B Perozzi, R Al-Rfou, A Alemi, "Watch your step: Learning graph embeddings through attention", *NIPS 2018 Poster* arXiv:1710.09599

2018a   AA Alemi, B Poole, I Fischer, JV Dillon, RA Saurous, K Murphy, "Fixing a Broken ELBO", *Talk ICML 2018* arXiv:1711.00464

2017e   LX Hayden, AA Alemi, PH Ginparg, JP Sethna, "Jeffrey's prior sampling of deep sigmoidal networks", *arXiv: 1705.10589*

2017d   K Fragkiadaki, J Huang, A Alemi, S Vijayanarasimhan, S Ricco, R Sukthankar, "Motion Prediction Under Multimodality with Conditional Stochastic Networks" *arXiv: 1705.02082*

2017c   M Bierbaum, BD Leahy, AA Alemi, I Cohen, JP Sethna, "Light Microscopy at Maximal Prediction", *PRX 7 (4), 041007*, arXiv: 1702.07336

2017b   C Szegedy, S Ioffe, V Vanhoucke, AA Alemi, "Inception-v4, Inception-ResNet and the Impact of Residual Connections on Learning." *AAAI, 4278-4284*, arXiv: 1602.07261

2017   AA Alemi, I Fischer, JV Dillon, KP Murphy, "Deep Variational Information Bottleneck", *ICLR 2017*, arXiv: 1612.00410

2016c   R Shin, AA Alemi, G Irving, O Vinyals, "Tree-Structured Variational Autoencoder" *ICLR 2017 Submission*

2017   B Poole, AA Alemi, J Sohl-Dickstein, A Angelova, "Improved generator objectives for GANS" *NIPS GAN Workshop 2016*, arXiv: 1612.02780

2016   G Irving, C Szegedy, AA Alemi, N EEn, F Chollet, J Urban, "Deepmath-deep sequence modesl for premise selection". *NIPS 2016*, arXiv: 1606.04442

2015g   CJM Mathy, F Gonda, D Schmidt, N Derbinsky, AA Alemi, J Bento, FM Delle Fave, JS Yedidia, "SPARTA: Fast global planning of collision-avoiding robot trajectories". Learning, Inference and Control of Multi-Agent Systems Workshop, NIPS 2015

2015f   AA Alemi, "Zombies Reading Segmented Graphic Articles on the ArXiv". PhD Thesis, Cornell University

2015e   JM Cashore, X Zhao, AA Alemi, Y Liu, PI Frazier, "Clustering via Content-Augmented Stochastic Blockmodels". arXiv: 1505.06538

2015d   LX Hayden, R Chachra, AA Alemi, PH Ginsparg, JP Sethna, "Canonical Sectors and Evolution of Firms in the US Stock Markets". arXiv: 1503.06205. Submitted to PLoS one.

2015c   AA Alemi, P Ginsparg, "Text Segmentation Based on Semantic Word Embeddings", arXiv: 1503.05543

2015b   AA Alemi, M Bierbaum, CR Myers, JP Sethna, "The Statistical Mechanics of Zombies", *Oral Presentation* APS March Meeting 2015

2015a   AA Alemi, M Bierbaum, CR Myers, JP Sethna, "You Can Run, You Can Hide: The Epidemiology and Statistical Mechanics of Zombies", arXiv: 1503.01104. Phys Rev E 92. 052801

2014b   A Taloni, AA Alemi, E Ciusani, JP Sethna, S Zapperi, CAM La Porta, "Mechanical Properties of Growing Melanocytic Nevi and the Progression to Melanoma", *PloS one*, 9 (4), e94229

2014a   A Alemi, R Chachra, P Ginsparg, J Sethna, "Finding Structure in the ArXiv", *Oral Presentations* APS March Meeting 2014

2013b   MM Baraldi, AA Alemi, JP Sethna, S Caracciolo, C La Porta, S Zapperi, "Growth and Form of Melanoma Cell Colonies", *Journal of Statistical Mechanics: Theory and Experiment*, 2013, 02, p02032

2013a   PY Huang, S Kurasch, JS Alden, A Shekhawat, AA Alemi, PL McEuen, JP Sethna, UTE Kaiser, DA Muller, "Imaging Atomic Rearrangements in Two-Dimensional Silica Glass: Watching Silica's Dance", *Science* 342, 6155 p224-227

2012   A Alemi, J Sethna, "A Group Theoretic Approach to Nonlinear and Gradient Elastic Terms for Graphene and Carbon Nanotubes", *Oral Presentation, APS March Meeting* 57

2011   RS Ottens, V Quetschke, S Wise, AA Alemi, R Lundoc, G Mueller, DH Reitze, DB Tanner, BF Whiting, "Near-field radiative heat transfer between macroscopic planar surfaces", *Physical Review Letters* 107 (1), 014301

2006   A Alemi, D Stevenson, "Why Venus has No Moon", *Oral Presentation, AAS Meeting* 28, 491