BABAK ESMAEILI

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PUBLICATIONS

Conference

[1] B. Esmaeili, H. Wu, S. Jain, A. Bozkurt, N. Siddharth, B. Paige, D. H. Brooks, J. Dy, and J.-W. Meent. "Structured Disentangled Representations". In: *The 22nd International Conference on Artificial Intelligence and Statistics*. 2019, pp. 2525–2534.

[2] B. Esmaeili, H. Huang, B. Wallace, and J.-W. van de Meent. "Structured Neural Topic Models for Reviews". In: *The 22nd International Conference on Artificial Intelligence and Statistics*. 2019, pp. 3429–3439.

Preprint

[1] A. Bozkurt, B. Esmaeili, D. H. Brooks, J. G. Dy, and J.-W. van de Meent. "Evaluating Combinatorial Generalization in Variational Autoencoders". In: *arXiv preprint arXiv:1911.04594* (2019).

Workshop

[1] A. Bozkurt, B. Esmaeili, D. H. Brooks, J. Dy, and J.-W. van de Meent. "Can VAEs Generate Novel Examples?" In: *NeurIPS Workshop on Critiquing and Correcting Trends in Machine Learning*. 2018.

EDUCATION

Northeastern University *2017 – Present*
PhD, Computer Science
Advisor: Prof. Jan-Willem van de Meent
Area: Machine Learning, Deep Generative Models, Probabilistic Programming

University of Edinburgh *2016 – 2017*
MSc, Data Science
Grade: **Distinction** (above 70%)
Advisor: Prof. Michael Guttman
Dissertation: Bayesian Optimization
Description: Scaling Bayesian optimization for high dimensional likelihood free inference problems.

University of Edinburgh *2012 – 2016*
BSc (Hons), Artificial Intelligence and Computer Science
Grade: **First Class** (above 70%)
Advisor: Prof. Michael Herrman
Dissertation: Particle Swarm Optimization

Description: Developed several algorithms for exploration of an unknown environment with the goal of finding a pre-specified desired area using multiple small simulated mobile robots.

EXPERIENCE

Teaching Assistant *2018 – 2019*
CS-7140 Advanced Machine Learning
https://www.khoury.neu.edu/home/jwvdm/teaching/cs7140/spring2018/

Research Assistant *2014 – 2015*
University of Edinburgh
School of Informatics
Advisor: Prof. Paul Anderson
Project: Social media interaction models for teaching and learning

RESEARCH INTERESTS

I am interested in deep generative models and how we can guide them towards learning disentangled and useful latent variables. Similarly, I am interested in deep representation leaning, especially the approaches that are motivated by information theory. I am also a fan of probabilistic programming which provides exciting opportunities for abstracting probabilistic models and making inference easier.