

BABAK ESMAEILI

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PUBLICATIONS

Conference

- [1] B. Esmaili, 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. Esmaili, 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. Esmaili*, D. H. Brooks, J. G. Dy, and J.-W. van de Meent. “Rate-Regularization and Generalization in VAEs”. In: *arXiv preprint arXiv:1911.04594* (2019).

Workshop

- [1] A. Bozkurt, B. Esmaili, 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.
- [2] H. Wu*, B. Esmaili*, M. Wick, J.-B. Tristan, and J.-W. van de Meent. “Conjugate Energy-based Models”. In: *Third Symposium on Advances in Approximate Bayesian Inference*. 2021.
- [3] H. Zimmermann, H. Wu, B. Esmaili, S. Stites, and J.-W. van de Meent. “Nested Variational Inference”. In: *Third Symposium on Advances in Approximate Bayesian Inference*. 2021.

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 for Likelihood Free Inference

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

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

REVIEWING

ICML - Top 33% Reviewer Award

2020

NeurIPS - Top 50% Reviewer Award

2019

RESEARCH INTERESTS

I am interested in deep generative models and how we can guide them towards learning good representations. For similar reasons, I am also interested in representation learning, particularly the approaches that are motivated by information theory. I am also a fan of probabilistic programming which provides exciting opportunities for abstracting probabilistic models, as well as improving efficiency in inference.