

BABAK ESMAEILI

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PUBLICATIONS

Conference

- [1] A. Bozkurt*, B. Esmaili*, D. H. Brooks, J. G. Dy, and J.-W. van de Meent. “Rate-Regularization and Generalization in VAEs”. In: *The 24th International Conference on Artificial Intelligence and Statistics*. 2021.
- [2] 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.
- [3] 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.

Workshop

- [1] 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.
- [2] 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.
- [3] 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.

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

- CS-7140 – Advanced Machine Learning

Spring 2018

<https://www.khoury.neu.edu/home/jwvdm/teaching/cs7140/spring2018>

- DS-5230 – Unsupervised Machine Learning and Data Mining

Spring 2021

<https://www.khoury.neu.edu/home/jwvdm/teaching/ds5230/spring2021>

Research Assistant

Summer 2014

University of Edinburgh

School of Informatics

Advisor: Prof. Paul Anderson

Project: Social media interaction models for teaching and learning

REVIEWING

International Conference on Machine Learning (ICML)

2019 – 2021

Advances in Neural Information Processing Systems (NeurIPS)

2019 – 2020

International Conference on Artificial Intelligence and Statistics (AISTATS)

2020 – 2021

AAAI Conference on Artificial Intelligence (AAAI)

2020 – 2021

International Conference on Learning Representations (ICLR)

2021

Awards:

International Conference on Machine Learning (ICML) - Top 33% Reviewer Award

2020

Advances in Neural Information Processing Systems (NeurIPS) - Top 50% Reviewer Award

2019

RESEARCH INTERESTS

I am interested in deep generative models and how we can guide them towards learning useful representations for downstream tasks. I am also interested in the intersection of information theory and representation learning. I am also a fan of probabilistic programming which I think provides exciting opportunities for abstracting probabilistic models as well as general frameworks for inference.