

# BABAK ESMAEILI

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## PUBLICATIONS

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### Conference

- [1] H. Wu\*, B. Esmaili\*, M. Wick, J.-B. Tristan, and J.-W. Van De Meent. “Conjugate Energy-Based Models”. In: *Proceedings of the 38th International Conference on Machine Learning*. Ed. by M. Meila and T. Zhang. Vol. 139. Proceedings of Machine Learning Research. PMLR, 2021, pp. 11228–11239.
- [2] 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.
- [3] 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.
- [4] 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] H. Zimmermann, H. Wu, B. Esmaili, and J.-W. van de Meent. “Nested Variational Inference”. In: *arXiv preprint arXiv:2106.11302* (2021).

### Workshop

- [1] H. Wu\*, B. Esmaili\*, M. L. Wick, J.-B. Tristan, and J.-W. van de Meent. “Conjugate Energy-Based Models”. In: *Energy Based Models Workshop - ICLR 2021*. 2021.
- [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.
- [4] 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

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### Northeastern University

PhD, Computer Science

Advisor: Prof. Jan-Willem van de Meent

Area: Machine Learning, Deep Generative Models, Representation Learning

2017 – Present

**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**

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**Teaching Assistant**

- DS-5230 – Unsupervised Machine Learning and Data Mining

*Spring 2021*<https://www.khoury.neu.edu/home/jwvdm/teaching/ds5230/spring2021>

- CS-7140 – Advanced Machine Learning

*Spring 2018*<https://www.khoury.neu.edu/home/jwvdm/teaching/cs7140/spring2018>**Research Assistant***Summer 2014*

University of Edinburgh

School of Informatics

Advisor: Prof. Paul Anderson

Project: Social media interaction models for teaching and learning

**REVIEWING**

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Advances in Neural Information Processing Systems (NeurIPS)

*2019 – 2021*

International Conference on Machine Learning (ICML)

*2020 – 2021*

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 10% Reviewer Award

*2021*

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**

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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.