

Approximating exponential family models (not single distributions) with a two-network architecture

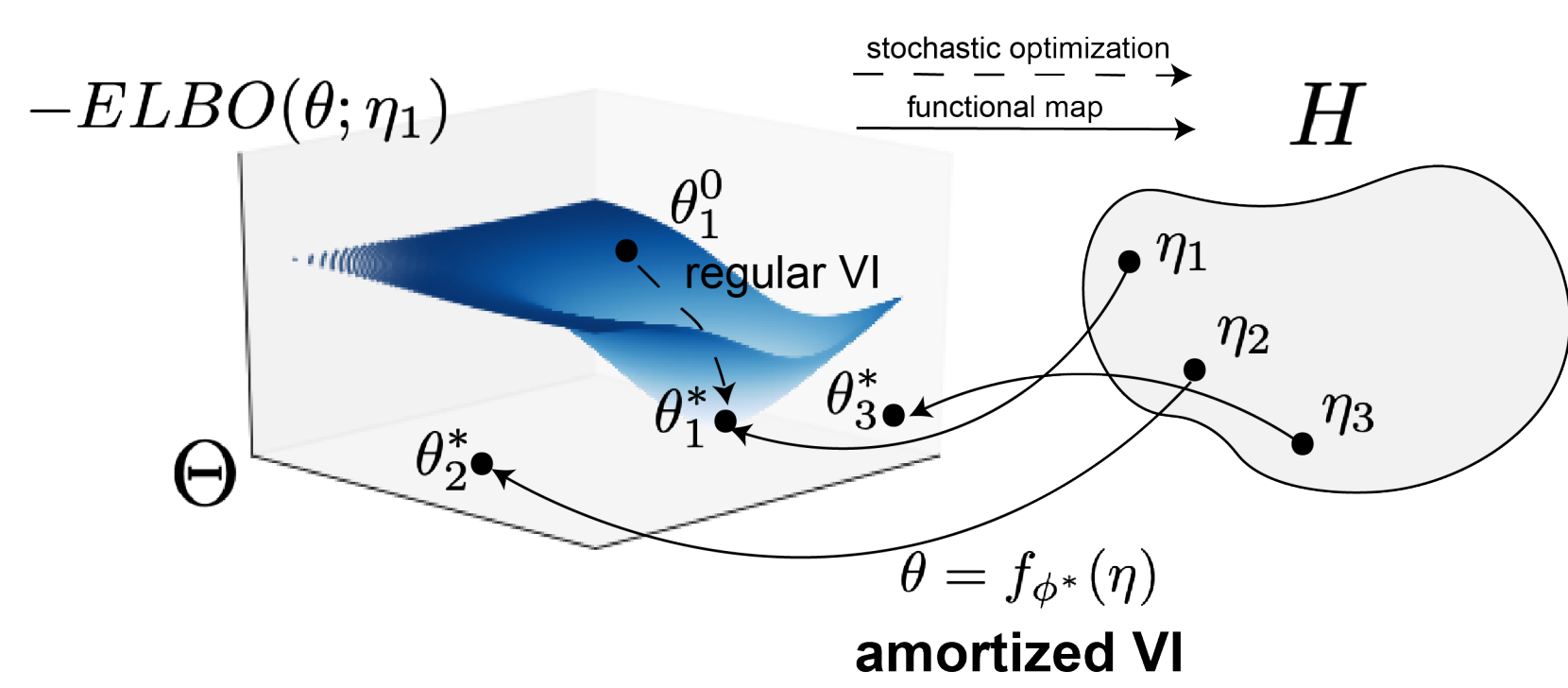
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Motivation

- Variational inference (VI) incurs a cost of optimization to find optimal variational parameters $\theta^* \in \Theta$ of the approximate inference model.
- Intractable exponential family models
 - an exp fam likelihood
 - i.i.d. observations
 - a nonconjugate prior
- have a fixed-dimensionality natural parameterization η with increased sampling.
- If we can learn a smooth function $f_{\phi^*} : H \rightarrow \Theta$ mapping η to θ^* ,

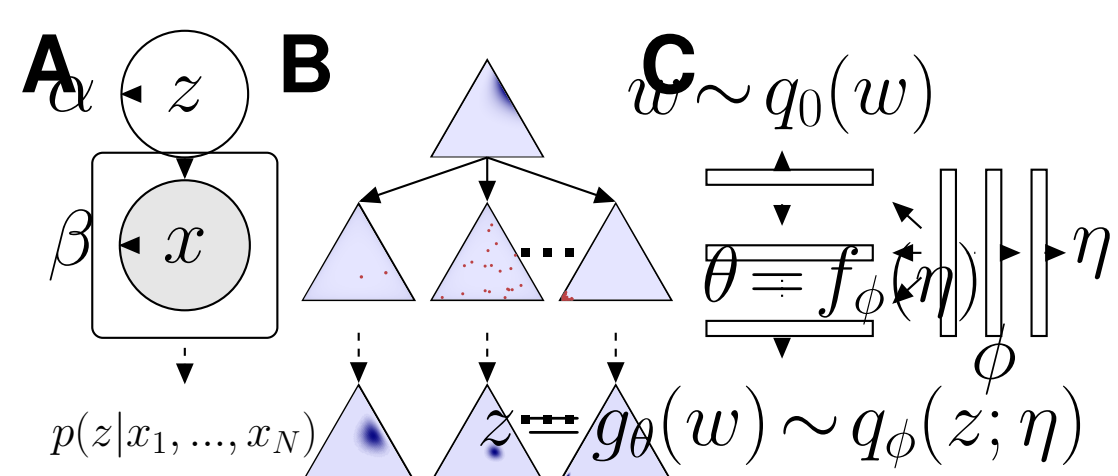


there is potential for large savings through amortized variational inference.

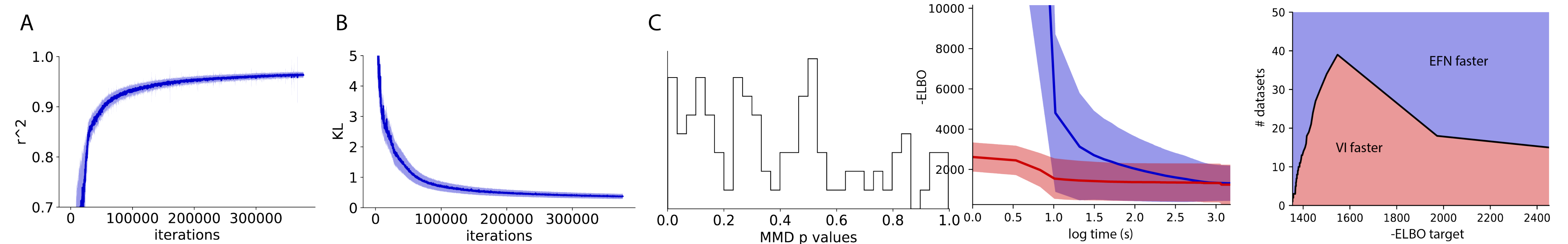
Methods

Background: topic stuff

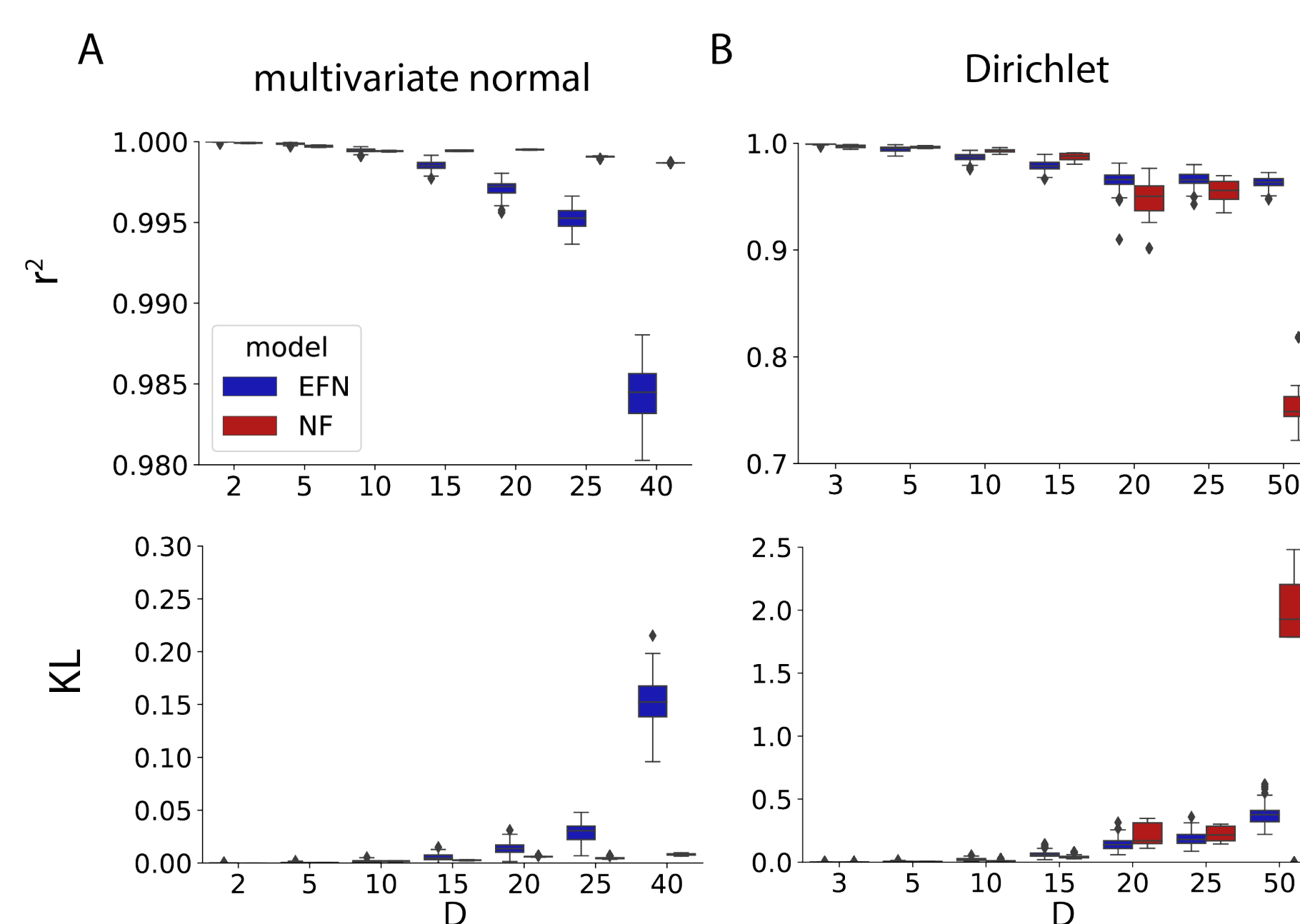
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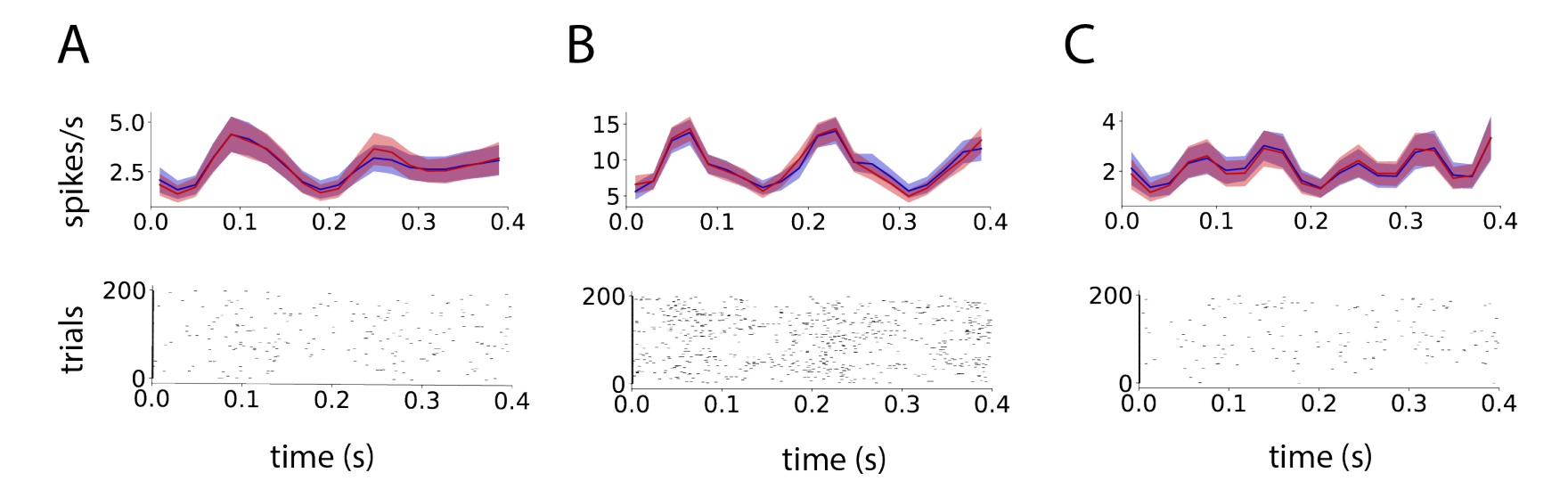
Application 1: 4-neuron V1 model



Emergent properties:



More stuff



Summary

- Summary point 1
- Summary point 2

References

1. Loaiza-Ganem, G., Y. Gao., and J. P. Cunningham. "Maximum entropy flow networks." ICLR (2017).
2. Dipoppa, M., et al. "Vision and locomotion shape the interactions between neuron types in mouse visual cortex." Neuron (2018).
3. Mastrogiuseppe, F., and S. Ostojic. "Linking connectivity, dynamics, and computations in low-rank recurrent neural networks." Neuron (2018).

Acknowledgements

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