Notes: Pattern Recognition and Machine Learning – Ch10 Variational Inference

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Definitions

- Variational inference is also called variational Bayes, thus all parameters are viewed as random variables and will have prior distributions.
- We denote the set of all latent variables and parameters by $\mathbf{Z}$
  - Note: the parameter vector $\boldsymbol{\theta}$ no long appears, because it's now a part of $\mathbf{Z}$
- Goal: find approximationx for
  - the posterior distribution $p(\mathbf{Z} \mid \mathbf{X})$, and
  - the marginal likelihood $p(\mathbf{X})$, also called the model evidence

Model evidence equals lower bound plus KL divergence

References

- Bishop, C. M. (2006). Pattern Recognition and Machine Learning. Springer.