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Variational Inference: Mean Field, Normalizing Flows and beyond

Friday 27 November 2020 14:50 (40 minutes)

In this talk we are going to discuss Variational approach to Bayesian Inference. We will start by reviewing standard mean-field approximations to the posterior as well as more powerful methods such as normalizing flows. Then we will discuss a new computationally efficient method to combine Variational Inference (VI) with Markov Chain Monte Carlo (MCMC). This approach can be used with generic MCMC kernels, but is especially well suited to MetFlow, a novel family of MCMC algorithms we introduce, in which proposals are obtained using Normalizing Flows. The marginal distribution produced by such MCMC algorithms is a mixture of flow-based distributions, thus drastically increasing the expressivity of the variational family. Unlike previous methods following this direction, our approach is amenable to the reparametrization trick and does not rely on computationally expensive reverse kernels

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