Séminaire de Probabilités et Statistique

Mardi 18 Décembre à 14h00

Laboratoire Dieudonné

Salle de Conférences

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Deep latent variable models and applications

Deep latent variable models (DLVMs) combine the approximation abilities of deep neural networks and the statistical foundations of generative models. Variational methods are commonly used for inference, following the seminal work of Rezende, Mohamed, and Wierstra (ICML 2014, arXiv :1401.4082) and Kingma & Welling (ICLR 2014, arXiv :1312.6114). We will provide a general review of these models and techniques, viewed from a statistical perspective. In particular, drawing connections with more traditional mixture models, we will study theoretically and empirically the well-posedness of the exact problem (maximum likelihood) these variational approaches approximatively solve. We will also present two new algorithms that leverage DLVMs for missing data imputation and clustering. Most of this talk will be based on the following papers :

- Leveraging the Exact Likelihood of Deep Latent Variable Models (joint work with Jes Frellsen, NIPS 2018, arXiv :1802.04826)
- Wasserstein Adversarial Mixture Clustering (joint work with Warith Harchaoui, Charles Bouveyron, and Andrés Alamansa, hal :01827775)