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Title: **Bayesian matrix factorization approaches to blind source separation**

Abstract: The blind source separation problem is to infer a set of hidden sources when only their mixtures are observable. This problem can naturally be represented as a matrix factorization problem. We present a general Bayesian approach to probabilistic matrix factorization, and present an efficient Markov chain Monte Carlo inference procedure based on Gibbs sampling. We discuss how adding relevant linear constraints can completely change the results of the algorithm. We demonstrate that our algorithm can be used to extract meaningful and interpretable features that are remarkably different from features extracted using existing related matrix factorization techniques.