Bayesian inference for Hidden Markov Models

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Abstract

Hidden Markov Models can be considered an extension of mixture models, allowing for dependent observations. In a hierarchical Bayesian framework, we show how Reversible Jump Markov Chain Monte Carlo techniques can be used to estimate the parameters of a model, as well as the number of regimes. We consider a mixture of normal distributions characterized by different means and variances under each regime, extending the model proposed by Robert *et al.* (2000), based on a mixture of zero mean normal distributions.

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