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Inference

Sampling the Dirichlet Mixture Model with Slices

Stephen G. Walker

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Abstract

We provide a new approach to the sampling of the well known mixture of Dirichlet process model. Recent attention has focused on retention of the random distribution function in the model, but sampling algorithms have then suffered from the countably infinite representation these distributions have. The key to the algorithm detailed in this article, which also keeps the random distribution functions, is the introduction of a latent variable which allows a finite number, which is known, of objects to be sampled within each iteration of a Gibbs sampler.

Keywords:

Bayesian nonparametrics | Density estimation | Dirichlet process | Gibbs sampler | Slice sampling

Mathematics Subject Classification:

Primary 62G99, 62F15 Secondary 65C60

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