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Posterior sampling with constructed likelihood functions: an application to flowgraph models. (English) Zbl 1114.62027

Appl. Stoch. Models Bus. Ind. 22, No. 2, 127-137 (2006).

The authors consider posterior sampling in situations where data are incomplete in such a way that likelihood functions corresponding to portions of the data must be constructed. Such situations arise in the modelling of time-to-event data when not all of the event occurrences are observed. The estimation of Bayesian predictive distributions for flowgraph models using Laplace transform inversion and slice sampling techniques are described. The authors construct likelihood functions for the incomplete data and use them in a Markov chain Monte Carlo algorithm to sample from the approximate posterior and compute Bayes predictive distributions. A real data example for a cellular telephone network is used.

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MSC:

[62F15](#) Bayesian inference

[65C40](#) Numerical analysis or methods applied to Markov chains

[62P30](#) Applications of statistics in engineering and industry; control charts

Cited in 1 Document

Keywords:

Bayesian predictive distribution; censored data; flowgraph model; incomplete data; slice sampling; queuing model

Full Text: [DOI](#)

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