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Agnieszka Borowska

Methods for Accurate and Efficient Bayesian Analysis of Time Series

This dissertation investigates Bayesian inference over time series models with the emphasis put on applications in economics and finance. It adopts simulation-based techniques, which are necessary in any nontrivial problem in this setting. The main motivation behind the presented research is to increase the efficiency and accuracy of these computationally intensive methods in several different contexts. One of the main topics addressed is efficient and precise risk estimation, or rare event analysis. Another problem studied in this thesis is the efficiency of various sampling algorithms, in particular importance sampling and Markov chain Monte Carlo algorithms. Finally, this dissertation addresses the issue of forecasting, from a single model as well as from a combination of models.

Agnieszka Borowska holds bachelor and master degrees in economics from the Warsaw School of Economics, a bachelor degree in mathematics from the University of Warsaw and an MPhil degree from the Tinbergen Institute and the Vrije Universiteit Amsterdam. She conducted her PhD research at the Vrije Universiteit Amsterdam. She is currently a postdoctoral researcher at the School of Mathematics and Statistics, University of Glasgow.

Methods for Accurate and Efficient Bayesian Analysis of Time Series Agnieszka Borowska