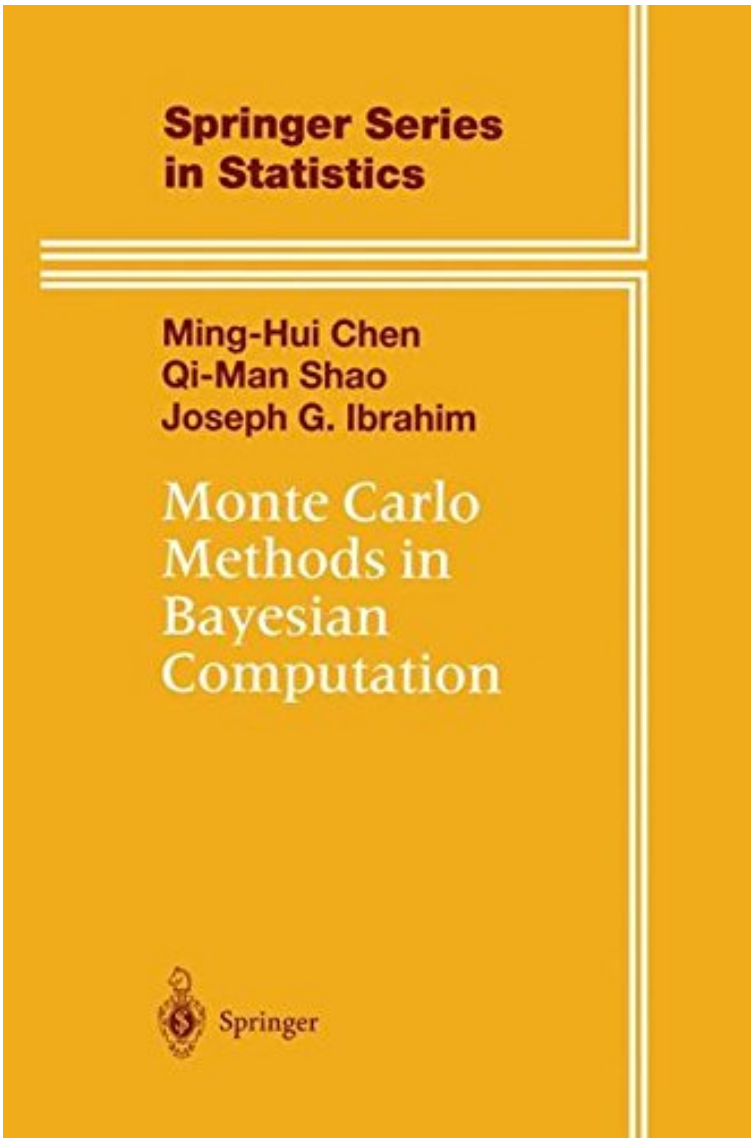
Monte Carlo Methods in Bayesian Computation (Springer Series in Statistics)

Ming-Hui Chen, Qi-Man Shao, Joseph G. Ibrahim



#1885287 in Books Ming Hui Chen 2001-10-05Original language:EnglishPDF # 1 9.21 x .94 x 6.14l, 1.58 #File Name: 0387989358387 pagesMonte Carlo Methods In Bayesian Computation | File size: 22.Mb

Ming-Hui Chen, Qi-Man Shao, Joseph G. Ibrahim : Monte Carlo Methods in Bayesian Computation (Springer Series in Statistics) before purchasing it in order to gage whether or not it would be worth my time, and all praised Monte Carlo Methods in Bayesian Computation (Springer Series in Statistics):

27 of 28 people found the following review helpful. MCMC methods presente for efficient and realistic application of Bayesian methodsBy Michael R. ChernickWith advances in computing and the rediscovery of Markov Chain Monte

Carlo methods and their application to Bayesian methods, there have been a number of books written on this subject in recent years. What then distinguishes this text from the others?Section 1.1 of the text "Aims" provides the objectives of the book and compares it to the other recent major works. Basically, the authors say that Tanner (1996), Gilks, Richardson and Spiegelhalter (1996), Gamerman (1997), Robert and Casella (1999) and Gelfand and Smith (2000) all offer developments in MCMC sampling. So this text only provides a brief but hopefully sufficient introduction to MCMC sampling.The main objective of the book is to develop more advanced Monte Carlo methods that speed up the computational time for specialized Bayesian problems. Problems of interest to the authors include estimating posterior means, modes and standard deviations, Bayesian equivalent of p-values, marginal posterior densities, marginal likelihoods, Bayes factors, posterior model probabilities, Bayesian credible intervals (the Bayes analogue to frequentist confidence intervals) and highest posterior probability density intervals.Chapter 1 sets the stage. It provides the objectives, an outline of the rest of the book and a list of motivating examples that will be used throughout the text.Chapter 2 then provides the brief introduction to MCMC sampling. Some theory is provided, many useful references are cited and several ideas are well illustrated through examples and figures.Chapter 3 is also introductory in nature showing how the methods of Chapter 2 can be applied to obtain various estimates based on the approximated posterior probability distribution.The rest of the book deals with specialized topics and techniques important to Bayesian inference. The book contains a wealth of theory and a good mix of applications and challenging research problems. The authors are experienced contributors to this literature.It is intended as an advanced graduate course for Ph.D. statistics student in their second or third year of graduate study. It also will serve statistical researchers with an excellent reference both for the practice and development of Bayesian inference. Applications in the area of biostatistics are emphasized but the methods apply to Bayesian statistical inference in all fields.13 of 17 people found the following review helpful. not a good starting pointBy John ScholesYou need to be clear what you are looking for. If you have vaguely heard that MCMC (Monte Carlo Markov Chain) methods are a neat way to apply Bayesian ideas to practical problems, and you want to use them, then this is *not* the book for you. Go to the splendid Gilks et al, Markov Chain Monte Carlo in Practice. Also check out BUGS, which is free software, originally written by Gilks and co and improved by many others.If you want a more general introduction to Bayesian methods, then Gelman et al, Bayesian Data Analysis is excellent.If you are unclear about the controversies and want to know why the Bayesian approach is correct, and the others are flat wrong, then read Ed Jaynes book.So what is this book for. Well, I think you have to be a specialist, interested in further development of the techniques, and in the maths. As a previous reviewer has commented (correctly), in that case you probably have easy access to the journal literature and need to think carefully what extra benefits this book gives you.8 of 11 people found the following review helpful. two great booksBy A CustomerThe reviews written by nothing3 on September 18 and October 2 are completely irresponsible, false, and way out of line. I was a principal reviewer for these two books written by the authors. The authors have done a wonderful job in providing a comprehensive treatment of the subject in both books. When I reviewed these books, I found that these books were extremely carefully and well written, citing a vast literature as well as their own work. I use these two books in my research, consulting, and teaching all of the time. My students really like the books, as they are very thorough, comprehensive, and tackle real applications using sophisticated models and computational algorithms. These two great books get 5 stars from me. The nothing3 reviewer gets 0 stars for writing such an irresponsible and unprofessional review.

Dealing with methods for sampling from posterior distributions and how to compute posterior quantities of interest using Markov chain Monte Carlo (MCMC) samples, this book addresses such topics as improving simulation accuracy, marginal posterior density estimation, estimation of normalizing constants, constrained parameter problems, highest posterior density interval calculations, computation of posterior modes, and posterior computations for proportional hazards models and Dirichlet process models. The authors also discuss model comparisons, including both nested and non-nested models, marginal likelihood methods, ratios of normalizing constants, Bayes factors, the Savage-Dickey density ratio, Stochastic Search Variable Selection, Bayesian Model Averaging, the reverse jump algorithm, and model adequacy using predictive and latent residual approaches. The book presents an equal mixture of theory and applications involving real data, and is intended as a graduate textbook or a reference book for a one-semester course at the advanced masters or Ph.D. level. It will also serve as a useful reference for applied or theoretical researchers as well as practitioners.

"This book combines the theory topics with good computer and application examples from the field of food science, agriculture, cancer and others. The volume will provide an excellent research resource for statisticians with an interest in computer intensive methods for modelling with different sorts of prior information."A.V. Tsukanov in "Short Book s", Vol. 20/3, December 2000About the AuthorMing-Hui Chen is Associate Professor of Mathematical Sciences at Worcester Polytechnic Institute. Qu-Man Shao is Assistant Professor of Mathematics at the University of Oregon. Joseph G. Ibrahim is Associate Professor of Biostatistics at the Harvard School of Public Health and Dana-Farber

Cancer Institute.