



Sequential Monte Carlo methods in practice /

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Monografía

Monte Carlo methods are revolutionising the on-line analysis of data in fields as diverse as financial modelling, target tracking and computer vision. These methods, appearing under the names of bootstrap filters, condensation, optimal Monte Carlo filters, particle filters and survival of the fittest, have made it possible to solve numerically many complex, non-standard problems that were previously intractable. This book presents the first comprehensive treatment of these techniques, including convergence results and applications to tracking, guidance, automated target recognition, aircraft navigation, robot navigation, econometrics, financial modelling, neural networks, optimal control, optimal filtering, communications, reinforcement learning, signal enhancement, model averaging and selection, computer vision, semiconductor design, population biology, dynamic Bayesian networks, and time series analysis. This will be of great value to students, researchers and practitioners, who have some basic knowledge of probability. Arnaud Doucet received the Ph. D. degree from the University of Paris- XI Orsay in 1997. From 1998 to 2000, he conducted research at the Signal Processing Group of Cambridge University, UK. He is currently an assistant professor at the Department of Electrical Engineering of Melbourne University, Australia. His research interests include Bayesian statistics, dynamic models and Monte Carlo methods. Nando de Freitas obtained a Ph.D. degree in information engineering from Cambridge University in 1999. He is presently a research associate with the artificial intelligence group of the University of California at Berkeley. His main research interests are in Bayesian statistics and the application of on-line and batch Monte Carlo methods to machine learning

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