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5: Generating Discrete Random Variates; Introduction; Discrete Arbitrary; Discrete Uniform; Bernoulli; Binomial; When n is Small; Normal Approximation; Poisson Approximation; Hyper Geometric; Geometric; Pascal; Poisson; Relation to the Exponential Distribution; Generating a Random Poisson Variate; Summary
Chapter 6: Generating Multivariate Random Variates Introduction; Multivariate Discrete Arbitrary; Generate a Random Set of Variates; Multinomial; Generating Random Multinomial Variates; Multivariate Hyper Geometric; Generating Random Variates; Bivariate Normal; Marginal Distributions; Conditional Distributions; Generate Random Variates (x1, x2); Bivariate Lognormal; Generate a Random Pair (x1, x2); Multivariate Normal; Cholesky Decomposition; Generate a Random Set [x1, , xk]; Multivariate Lognormal; Cholesky Decomposition; Generate a Random Set [x1, , xk]; Summary
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Cyclical Partitions and Buffers

Sommario/riassunto

Essentials of Monte Carlo Simulation focuses on the fundamentals of Monte Carlo methods using basic computer simulation techniques. The theories presented in this text deal with systems that are too complex to solve analytically. As a result, readers are given a system of interest and constructs using computer code, as well as algorithmic models to emulate how the system works internally. After the models are run very many times, in a random sample way, the data for each output variable (s) of interest is analyzed by ordinary statistical methods. This book features 11 comprehensive chapters, and discusses such key topics as random number generators, multivariate random variates, and continuous random variates. More than 100 numerical examples are presented in the chapters to illustrate useful real world applications. The text also contains an easy to read presentation with minimal use of difficult mathematical concepts. With a strong focus in the area of computer Monte Carlo simulation methods, this book will appeal to students and researchers in the fields of Mathematics and Statistics. Nick T. Thomopoulos is a professor emeritus at the Illinois Institute of Technology. He is the author of six books, including Fundamentals of Queuing Systems (2012). He has more than 100 published papers and presentations to his credit, and for many years, he has consulted in a wide variety of industries in the United States, Europe, and Asia. He has been the recipient of numerous honors, such as the Rist Prize in 1972 from the Military Operations Research Society for new developments in queuing theory, the Distinguished Professor Award in Bangkok, Thailand in 2005 from the IIT Asian Alumni Association, and the Professional Achievement Award in 2009 from the IIT Alumni Association.