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Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	Cover; Title Page; Copyright Page; Contents; Preface; Part I Overview and Motivation; 1 Introduction to Monte Carlo Methods; 1.1 Historical origin of Monte Carlo simulation; 1.2 Monte Carlo simulation vs. Monte Carlo sampling; 1.3 System dynamics and the mechanics of Monte Carlo simulation; 1.3.1 Discrete-time models; 1.3.2 Continuous-time models; 1.3.3 Discrete-event models; 1.4 Simulation and optimization; 1.4.1 Nonconvex optimization; 1.4.2 Stochastic optimization; 1.4.3 Stochastic dynamic programming; 1.5 Pitfalls in Monte Carlo simulation; 1.5.1 Technical issues 1.5.2 Philosophical issues 1.6 Software tools for Monte Carlo simulation; 1.7 Prerequisites; 1.7.1 Mathematical background; 1.7.2 Financial background; 1.7.3 Technical background; For further reading; References; 2 Numerical Integration Methods; 2.1 Classical quadrature formulas; 2.1.1 The rectangle rule; 2.1.2 Interpolatory quadrature formulas; 2.1.3 An alternative derivation; 2.2 Gaussian quadrature; 2.2.1 Theory of Gaussian quadrature: The role of orthogonal polynomials; 2.2.2 Gaussian quadrature in R; 2.3 Extension to higher

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2.6 Numerical integration in R; For further reading; References; Part II

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motion; 3.7.5 Generalizations; 3.8 Dimensionality reduction; 3.8.1

Principal component analysis (PCA)

3.8.2 Factor models

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## Sommario/riassunto

An accessible treatment of Monte Carlo methods, techniques, and applications in the field of finance and economics. Providing readers with an in-depth and comprehensive guide, the Handbook in Monte Carlo Simulation: Applications in Financial Engineering, Risk Management, and Economics presents a timely account of the applications of Monte Carlo methods in financial engineering and economics. Written by an international leading expert in the field, the handbook illustrates the challenges confronting present-day financial practitioners and provides various applications of Monte Carlo techniques to

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