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Titolo	Computation and Simulation for Finance : An Introduction with Python / / by Cónall Kelly
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Disciplina	332.6457
Soggetti	Social sciences - Mathematics Mathematics - Data processing Mathematics in Business, Economics and Finance Computational Mathematics and Numerical Analysis Python (Llenguatge de programació) Anàlisi numèrica Equacions diferencials estocàstiques Actius financers derivats Matemàtica financera Llibres electrònics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
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Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	- Part I Modelling Assets and Markets -- Introduction -- The Pricing of Financial Derivatives -- Part II Computational Pricing Methods in the Black-Scholes Framework -- Binomial Tree Methods -- Simulation I: Monte Carlo Methods -- Finite Difference Methods -- Part III Simulation Methods Beyond the Black-Scholes Framework -- Simulation II: Modelling Multivariate Financial Data -- Stochastic Models for Interest Rates -- Simulation III: Numerical Approximation of SDE Models.
Sommario/riassunto	This book offers an up-to-date introductory treatment of computational techniques applied to problems in finance, placing issues such as numerical stability, convergence and error analysis in both deterministic and stochastic settings at its core. The first part

provides a welcoming but nonetheless rigorous introduction to the fundamental theory of option pricing, including European, American, and exotic options along with their hedge parameters, and combines a clear treatment of the mathematical framework with practical worked examples in Python. The second part explores the main computational methods for valuing options within the Black-Scholes framework: lattice, Monte Carlo, and finite difference methods. The third and final part covers advanced topics for the simulation of financial processes beyond the standard Black-Scholes setting. Techniques for the analysis and simulation of multidimensional financial data, including copulas, are covered and will be of interest to those studying machine learning for finance. There is also an in-depth treatment of exact and approximate sampling methods for stochastic differential equation models of interest rates and volatilities. Written for advanced undergraduate and masters-level courses, the book assumes some exposure to core mathematical topics such as linear algebra, ordinary differential equations, multivariate calculus, probability, and statistics at an undergraduate level. While familiarity with Python is not required, readers should be comfortable with basic programming constructs such as variables, loops, and conditional statements.
