

1. Record Nr.	UNINA9910674355303321
Autore	Cursi Eduardo Souza de
Titolo	Uncertainty Quantification using R // by Eduardo Souza de Cursi
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2023
ISBN	9783031177859 9783031177842
Edizione	[1st ed. 2023.]
Descrizione fisica	1 online resource (768 pages)
Collana	International Series in Operations Research & Management Science, , 2214-7934 ; ; 335
Disciplina	519.502855133 519.2
Soggetti	Operations research Probabilities Mathematical optimization Operations Research and Decision Theory Applied Probability Discrete Optimization
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	1. Introduction -- 2. Some tips to use R and RStudio -- 3. Probabilities and Random Variables -- 4. Representation of random variables -- 5. Stochastic processes -- 6. Uncertain Algebraic Equations -- 7. Random Differential Equations -- 8. UQ in Game Theory -- 9. Optimization under uncertainty -- 10. Reliability.
Sommario/riassunto	This book is a rigorous but practical presentation of the techniques of uncertainty quantification, with applications in R and Python. This volume includes mathematical arguments at the level necessary to make the presentation rigorous and the assumptions clearly established, while maintaining a focus on practical applications of uncertainty quantification methods. Practical aspects of applied probability are also discussed, making the content accessible to students. The introduction of R and Python allows the reader to solve more complex problems involving a more significant number of variables. Users will be able to use examples laid out in the text to

solve medium-sized problems. The list of topics covered in this volume includes linear and nonlinear programming, Lagrange multipliers (for sensitivity), multi-objective optimization, game theory, as well as linear algebraic equations, and probability and statistics. Blending theoretical rigor and practical applications, this volume will be of interest to professionals, researchers, graduate and undergraduate students interested in the use of uncertainty quantification techniques within the framework of operations research and mathematical programming, for applications in management and planning. .

---