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	Titolo	Stochastic Optimization Methods : Applications in Engineering and Operations Research / / by Kurt Marti
	Pubbl/distr/stampa	Berlin, Heidelberg : , : Springer Berlin Heidelberg : , : Imprint : Springer, , 2015
	ISBN	3-662-46214-1
	Edizione	[3rd ed. 2015.]
	Descrizione fisica	1 online resource (389 p.)
	Disciplina	519.2
	Soggetti	Operations research
		Decision making
		Mathematical optimization
		Computational intelligence
		Operations Research/Decision Theory
		Optimization
		Computational Intelligence
	Lingua di pubblicazione	Inglese
	Formato	Materiale a stampa
	Livello bibliografico	Monografia
	Note generali	Description based upon print version of record.
	Nota di bibliografia	Includes bibliographical references and index.
	Nota di contenuto	Stochastic Optimization Methods -- Optimal Control Under Stochastic Uncertainty -- Stochastic Optimal Open-Loop Feedback Control -- Adaptive Optimal Stochastic Trajectory Planning and Control (AOSTPC) -- Optimal Design of Regulators -- Expected Total Cost Minimum Design of Plane Frames -- Stochastic Structural Optimization with Quadratic Loss Functions -- Maximum Entropy Techniques.
	Sommario/riassunto	This book examines optimization problems that in practice involve random model parameters. It details the computation of robust optimal solutions, i.e., optimal solutions that are insensitive with respect to random parameter variations, where appropriate deterministic substitute problems are needed. Based on the probability distribution of the random data, and using decision theoretical concepts, optimization problems under stochastic uncertainty are converted into appropriate deterministic substitute problems. Due to the probabilities and expectations involved, the book also shows how to apply approximative solution techniques. Several deterministic and stochastic

approximation methods are provided: Taylor expansion methods, regression and response surface methods (RSM), probability inequalities, multiple linearization of survival/failure domains, discretization methods, convex approximation/deterministic descent directions/efficient points, stochastic approximation and gradient procedures, and differentiation formulas for probabilities and expectations. In the third edition, this book further develops stochastic optimization methods. In particular, it now shows how to apply stochastic optimization methods to the approximate solution of important concrete problems arising in engineering, economics and operations research.