1.	Record Nr.	UNISA996503551003316
	Autore	Heitzinger Clemens
	Titolo	Algorithms with JULIA : optimization, machine learning, and differential Equations using the JULIA language / / Clemens Heitzinger
	Pubbl/distr/stampa	Cham, Switzerland : , : Springer International Publishing, , [2023] ©2023
	ISBN	9783031165603 9783031165597
	Descrizione fisica	1 online resource (447 pages)
	Disciplina	005.1
	Soggetti	Computer algorithms Julia (Computer program language) Algorismes computacionals Llibres electrònics
	Lingua di pubblicazione	Inglese
	Formato	Materiale a stampa
	Livello bibliografico	Monografia

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Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2018
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Edizione	[1st ed. 2018.]
Descrizione fisica	1 online resource (275 pages)
Collana	Springer INdAM Series, , 2281-5198 ; ; 29
Disciplina	629.8312
Soggetti	System theory
	Control theory
	Numerical analysis
	Mathematics - Data processing
	Engineering mathematics
	Game theory
	Systems Theory, Control
	Numerical Analysis
	Computational Science and Engineering
	Engineering Mathematics
	Game Theory
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Livello bibliografico	Monografia
Nota di contenuto	1 M. Assellaou and A. Picarelli, A Hamilton-Jacobi-Bellman approach for the numerical computation of probabilistic state constrained reachable sets -- 2. A. Britzelmeier, A. De Marchi, and M. Gerdts, An iterative solution approach for a bi-level optimization problem for congestion avoidance on road networks -- 3 S. Cacace, R. Ferretti, and Z. Rafiei, Computation of Optimal Trajectories for Delay Systems: an Optimize-Then-Discretize Strategy for General-Purpose NLP Solvers -- 4 L. Mechelli and S. Volkwein, POD-Based Economic Optimal Control of Heat-Convection Phenomena -- 5 A. Alla and V. Simoncini, Order reduction approaches for the algebraic Riccati equation and the LQR problem -- 6 F. Durastante and S. Cipolla, Fractional PDE constrained optimization: box and sparse constrained problems -- 7 M. C. Delfour,

Control, Shape, and Topological Derivatives via Minimax Differentiability of Lagrangians -- 8 A. J. Krener, Minimum Energy Estimation Applied to the Lorenz Attractor -- 9 M. Akian and E. Fodjo, Probabilistic max-plus schemes for solving Hamilton-Jacobi-Bellman equations -- 10 P. M. Dower, An adaptive max-plus eigenvector method for continuous time optimal control problems -- 11 W. Mc Eneaney and R. Zhao, Diffusion Process Representations for a Scalar-Field Schr¨odinger Equation Solution in Rotating Coordinates.

Sommario/riassunto	The volume presents recent mathematical methods in the area of optimal control with a particular emphasis on the computational aspects and applications. Optimal control theory concerns the determination of control strategies for complex dynamical systems in order to optimize measures of their performance. The field was created in the 1960's, in response to the pressures of the "space race" between the US and the former USSR, but it now has a far wider scope and embraces a variety of areas ranging from process control to traffic flow optimization, renewable resources exploitation and financial market management. These emerging applications require increasingly efficient numerical methods to be developed for their solution – a difficult task due the huge number of variables. Providing an up-to-date overview of several recent methods in this area, including fast dynamic programming algorithms, model predictive control and max-plus techniques, this book is intended for researchers, graduate students and applied scientists working in the area of control problems, differential games and their applications.