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Nota di contenuto	Chapter 1. Introduction -- Chapter 2. Optimal Control of Markov Processes: Infinite Horizon -- Chapter 3. Optimal Control of Diffusion Processes -- Chapter 4. Degenerate Diffusion Processes -- Chapter 5. Multi-Dimensional Diffusion Processes -- Chapter 6. Performance-Derivative-Based Optimization -- Appendices -- Index.
Sommario/riassunto	This monograph applies the relative optimization approach to time nonhomogeneous continuous-time and continuous-state dynamic systems. The approach is intuitively clear and does not require deep knowledge of the mathematics of partial differential equations. The topics covered have the following distinguishing features: long-run average with no under-selectivity, non-smooth value functions with no viscosity solutions, diffusion processes with degenerate points, multi-class optimization with state classification, and optimization with no dynamic programming. The book begins with an introduction to relative optimization, including a comparison with the traditional approach of dynamic programming. The text then studies the Markov process, focusing on infinite-horizon optimization problems, and

moves on to discuss optimal control of diffusion processes with semi-smooth value functions and degenerate points, and optimization of multi-dimensional diffusion processes. The book concludes with a brief overview of performance derivative-based optimization. Among the more important novel considerations presented are: the extension of the Hamilton–Jacobi–Bellman optimality condition from smooth to semi-smooth value functions by derivation of explicit optimality conditions at semi-smooth points and application of this result to degenerate and reflected processes; proof of semi-smoothness of the value function at degenerate points; attention to the under-selectivity issue for the long-run average and bias optimality; discussion of state classification for time nonhomogeneous continuous processes and multi-class optimization; and development of the multi-dimensional Tanaka formula for semi-smooth functions and application of this formula to stochastic control of multi-dimensional systems with degenerate points. The book will be of interest to researchers and students in the field of stochastic control and performance optimization alike.
