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Collana	Studies in Systems, Decision and Control, , 2198-4182 ; ; 78
Disciplina	515.392
Soggetti	Control engineering Fluid mechanics Aerospace engineering Astronautics Electronic circuits Control and Systems Theory Engineering Fluid Dynamics Aerospace Technology and Astronautics Circuits and Systems
Lingua di pubblicazione	Inglese
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Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	Part I: Preliminaries -- Singular Perturbation Methods and Time-Scale Techniques -- Theoretical Foundation of Finite Frequency Control -- Part II: Control System Analysis and Synthesis -- Stabilization of Singularly Perturbed Systems -- Finite Frequency H Control for Singularly Perturbed Systems -- Finite Frequency Positive Real Control for Singularly Perturbed Systems -- Sensitive-Shaping Problem for Singularly Perturbed Systems -- Part III: Applications -- Applications.
Sommario/riassunto	This book is a self-contained collection of recent research findings providing a comprehensive and systematic unified framework for both analysis and synthesis for singularly perturbed systems. It paves the way for the gap between frequency-domain-transfer-function-based results and time-domain-state-space-based results to be bridged. It is

divided into three parts focusing on: fundamental background of singular perturbation; general singular perturbation methodologies and time-scale techniques and the theoretical foundation of finite-frequency control; the analysis and synthesis of singularly perturbed systems; and real-world engineering applications implementing the results developed in systems like wind turbines and autonomous-aerial-vehicle hovering. It also presents solutions to analysis and design problems in terms of linear matrix inequalities. Lastly, it provides valuable reference material for researchers who wish to explore the design of controllers for such systems.
