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	Soggetti	Control engineering Mathematical optimization Calculus of variations Automotive engineering Control and Systems Theory Calculus of Variations and Optimization Automotive Engineering
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	Note generali	"The contents of this book are peer reviewed versions of selected workshop contributions ... workshop organized by the Austrian Kepler University in Linz from July 15 to 16, 2013"--Preface.
	Nota di bibliografia	Includes bibliographical references and author index.
	Nota di contenuto	Trajectory Optimization: A Survey -- Extremum Seeking Methods for Online Automotive Calibration -- Model Predictive control of Autonomous Vehicles -- Approximate Solution of HJBE and Optimal Control in Internal Combustion Engines -- Intelligent Speed Advising Based on Cooperative Traffic Scenario -- Driver Control and Trajectory Optimization Applied to Lane Change Maneuver -- Real-Time Near-Optimal Feedback Control of Aggressive Vehicle Maneuvers -- Applications of Computational Optimal Control to Vehicle Dynamics -- Predictive Cooperative Adaptive Cruise Control: Fuel Consumption Benefits and Implementability -- Topology Optimization of Hybrid Power Trains -- Model-based Optimal Energy Management Strategies for Hybrid Electric Vehicles -- Optimal Energy Management of Automotive Battery Systems Including Thermal Dynamics and Aging -- Optimal Control of Diesel Engines with Waste Heat Recovery System --

Learning Based Approaches to Engine Mapping and Calibration Optimization -- Online Design of Experiments in the Relevant Output Range -- Optimal Control of HCCI -- Optimal Lifting and Path Profiles for a Wheel Loader Considering Engine and Turbo Limitations.

Sommario/riassunto	This book demonstrates the use of the optimization techniques that are becoming essential to meet the increasing stringency and variety of requirements for automotive systems. It shows the reader how to move away from earlier approaches, based on some degree of heuristics, to the use of more and more common systematic methods. Even systematic methods can be developed and applied in a large number of forms so the text collects contributions from across the theory, methods and real-world automotive applications of optimization. Greater fuel economy, significant reductions in permissible emissions, new drivability requirements and the generally increasing complexity of automotive systems are among the criteria that the contributing authors set themselves to meet. In many cases multiple and often conflicting requirements give rise to multi-objective constrained optimization problems which are also considered. Some of these problems fall into the domain of the traditional multi-disciplinary optimization applied to system, sub-system or component design parameters and is performed based on system models; others require applications of optimization directly to experimental systems to determine either optimal calibration or the optimal control trajectory/control law. Optimization and Optimal Control in Automotive Systems reflects the state-of-the-art in and promotes a comprehensive approach to optimization in automotive systems by addressing its different facets, by discussing basic methods and showing practical approaches and specific applications of optimization to design and control problems for automotive systems. The book will be of interest both to academic researchers, either studying optimization or who have links with the automotive industry and to industrially-based engineers and automotive designers.