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Titolo	Energy-Efficient Driving of Road Vehicles : Toward Cooperative, Connected, and Automated Mobility / / by Antonio Sciarretta, Ardalan Vahidi
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Soggetti	Transportation engineering Traffic engineering Automotive engineering Application software Electrical engineering Transportation Technology and Traffic Engineering Automotive Engineering Information Systems Applications (incl. Internet) Communications Engineering, Networks
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Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Energy saving potentials of CAVs -- Fundamentals of vehicle modeling -- Perception and Control for Connected and Automated Vehicles -- Route and traffic description -- Energy-efficient route navigation (Eco-routing) -- Energy-efficient speed profiles (Eco-driving) -- Specific scenarios and applications -- Eco-driving Practical Implementation -- Detailed Case Studies -- Parametric optimization method for eco-driving of ICEVs -- Domain of Feasibility of the Analytical Optimal Speed Profiles for EVs.
Sommario/riassunto	This book elaborates the science and engineering basis for energy-efficient driving in conventional and autonomous cars. After covering the physics of energy-efficient motion in conventional, hybrid, and

electric powertrains, the book chiefly focuses on the energy-saving potential of connected and automated vehicles. It reveals how being connected to other vehicles and the infrastructure enables the anticipation of upcoming driving-relevant factors, e.g. hills, curves, slow traffic, state of traffic signals, and movements of nearby vehicles. In turn, automation allows vehicles to adjust their motion more precisely in anticipation of upcoming events, and to save energy. Lastly, the energy-efficient motion of connected and automated vehicles could have a harmonizing effect on mixed traffic, leading to additional energy savings for neighboring vehicles. Building on classical methods of powertrain modeling, optimization, and optimal control, the book further develops the theory of energy-efficient driving. In addition, it presents numerous theoretical and applied case studies that highlight the real-world implications of the theory developed. The book is chiefly intended for undergraduate and graduate engineering students and industry practitioners with a background in mechanical, electrical, or automotive engineering, computer science or robotics.