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Nota di contenuto	Part 1. Design and Engineering -- Chapter 1. Concept Design: Modeling and Synthesis from Requirements to Functional Models and Simulation -- Chapter 2. Platform-Based Design for Automotive and Transportation Cyber-Physical Systems -- Chapter 3. An Hourglass-Shaped Architecture for Model-Based Development of Networked Cyber-Physical Systems -- Part 2. Testing and Operation -- Chapter 4. Formal Techniques for Verification and Testing of Cyber-Physical Systems -- Chapter 5. Data-driven Safety Verification of Complex Cyber-Physical Systems -- Chapter 6. System Assurance in the Design of Resilient Cyber-Physical Systems -- Part 3. Application-Specific Design Automation Methodologies and Tools -- Chapter 7. Optimal Design of Distributed Controllers for Large-Scale Cyber-Physical Systems -- Chapter 8. Model-driven Software Design Automation for Complex Rehabilitation -- Chapter 9. Design Automation using Structural Graph Convolutional Neural Networks -- Chapter 10. Design

Automation for Energy Storage Systems.

Sommario/riassunto

This book presents the state-of-the-art and breakthrough innovations in design automation for cyber-physical systems.The authors discuss various aspects of cyber-physical systems design, including modeling, co-design, optimization, tools, formal methods, validation, verification, and case studies. Coverage includes a survey of the various existing cyber-physical systems functional design methodologies and related tools will provide the reader unique insights into the conceptual design of cyber-physical systems. Provides a single-source reference on design automation of cyber-physical systems; Serves as a practical guide to managing complexity during the CPS development process with design automation tools and methodologies; Discusses modeling cyber-physical systems at various abstraction levels; Includes coverage of high-level synthesis for cyber-physical systems; Discusses design for performance/energy-efficiency/security, as well as various tools for validation and verification; Includes case studies in manufacturing and critical infrastructure systems.