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Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Part I Approximate Arithmetic and Circuits -- 1-Approximate Arithmetic Circuits: Design and Applications -- 2-An Automated Logic Level Framework for Approximate Modular Arithmetic Circuits -- 3-Approximate Multiplier Design for Energy Efficiency: From Circuit to Algorithm -- 4-Low-Precision Floating-Point Formats: From General-Purpose to Application-Specific -- 5-Spintronic Solutions for Approximate Computing -- 6-Majority Logic Based Approximate Multipliers for Error-Tolerant Applications -- Part II Design Automation and Test -- 7-Approximate Logic Synthesis for FPGA by Decomposition -- 8-Design Techniques for Approximate Realization of Data-Flow Graphs -- 9-Approximation on Data Flow Graph Execution for Energy Efficiency -- 10-Test and Reliability of Approximate Hardware -- Part III Security -- 11-SecurityVulnerabilities in Approximate Circuits -- 12-Voltage Overscaling Techniques for Security Applications -- 13-Approximate Computing for Cryptography -- 14-Towards Securing

Approximate Computing Systems: Security Threats and Attack Mitigation -- Part IV Neural Networks and Machine Learning -- 15-Approximate Computing for Machine Learning Workloads: A circuits and systems perspective -- 16-Approximate Computing for Efficient Neural Network Computation -- 17-Enabling Efficient Inference of Convolutional Neural Networks via Approximation -- 18-Approximate Computing for Energy-Constrained DNN-based Speech Recognition -- 19-Efficient Approximate DNN Accelerators for Edge Devices -- Part V Applications -- 20-Cross-Level Design of Approximate Computing for Continuous Perception System -- 21-Approximate Computing in Image Compression and Denoising -- 22-Approximate Computation for Baseband Processing.

Sommario/riassunto

This book explores the technological developments at various levels of abstraction, of the new paradigm of approximate computing. The authors describe in a single-source the state-of-the-art, covering the entire spectrum of research activities in approximate computing, bridging device, circuit, architecture, and system levels. Content includes tutorials, reviews and surveys of current theoretical/experimental results, design methodologies and applications developed in approximate computing for a wide scope of readership and specialists. Serves as a single-source reference to state-of-the-art of approximate computing; Covers broad range of topics, from circuits to applications; Includes contributions by leading researchers, from academia and industry.