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	Nota di contenuto	Part-I. In-Memory Computing, Neuromorphic Computing and Machine Learning -- Chapter 1. Emerging Technologies for Memory-Centric Computing -- Chapter 2. An overview of Computation-in-Memory (CIM) architectures -- Chapter 3. Towards Spintronics Non-Volatile Computing-in-Memory Architecture -- Chapter 4. Is Neuromorphic Computing the Key to Power-Efficient Neural Networks?: A Survey -- Chapter 5. Emerging Machine Learning using Siamese and Triplet Neural Networks -- Chapter 6. An active storage system for intelligent data analysis and management -- Chapter 7. Error-Tolerant Techniques for Classifiers beyond Neural Networks for Dependable Machine Learning -- Part-II. Stochastic Computing -- Chapter 8. Efficient Random Number Source Designs Based on D Flip-Flops for Stochastic Computing -- Chapter 9. Stochastic multipliers from serial to parallel -- Chapter 10. Ising Models Based On Stochastic Computing -- Chapter 11. Stochastic and Approximate Computing for Deep Learning: A Survey -- Chapter 12. Stochastic Computing and Morphological Neural Networks: an ultra-high energy-efficient Machine Learning methodology -- Chapter 13. Characterizing Stochastic Number Generators for Accurate Stochastic Computing -- Part-III. Inexact/Approximate Computing -- Chapter 14. Automated Generation and Evaluation of Application-Oriented Approximate Arithmetic Circuits -- Chapter 15. Automatic Approximation of Computer Systems through Multi-Objective Optimization -- Chapter 16. Evaluation of the

functional impact of approximate arithmetic circuits on two application examples -- Chapter 17. Energy Efficient Approximate Floating-Point FFT Design Using A Top-Down Methodology -- Chapter 18. Approximate Computing in Machine Learning Systems: Cross-level designs and methodologies -- Chapter 19. Adaptive Approximate Accelerators with Controlled Quality using Machine Learning -- Chapter 20. Design Wireless Communication Circuits and Systems Using Approximate Computing -- Chapter 21. Low-cost Logarithmic Floating-point Multipliers for Efficient Neural Network Training -- Part-IV. Quantum Computing and Other Emerging Computing -- Chapter 22. Cryogenic CMOS for quantum computing -- Chapter 23. Memristive Crossbar System towards Hardware Accelaration of Quantum Algorithms -- Chapter 24. A Review of Posit Arithmetic for Energy Efficient Computation: Methodologies, Applications, and Challenges -- Chapter 25. Designing Fault Tolerant Digital circuits in Quantum-dot Cellular Automata -- Chapter 26. CMOS Circuit-based Fully Connected Ising Machines with Parallel Updating and Its Applications in MIMO Detection -- Chapter 27. Approximate Communication in Network-on Chips for Training and Inference of Image Classification Models.

| Sommario/riassunto | This book provides a single-source reference to the state-of-the-art in emerging computer systems. The authors address the technological contributions and developments at various hardware levels of new systems that compute under novel operational paradigms such as stochastic, probabilistic/inexact, neuromorphic, spintronic, bio-inspired and in-memory computing. Coverage includes the entire stack, i.e., from circuit, architecture, up to system level. This book includes tutorials, reviews and surveys of current theoretical/experimental results, design methodologies and a range of applications. Serves as a single-source reference to state-of-the-art of emerging computing paradigms; Covers the entire system stack, i.e., from circuit, architecture, up to system level; Includes contributions by leading researchers from academia and industry. |