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Nota di contenuto	New Programs after the End of the Nanometer Roadmap -- Real-World Electronics -- Silicon Complementary MOS (CMOS) Technology in its 7th Decade -- The Future of Ultra-Low-Power SOTBC CMOS -- Energy-Efficient and High-Throughput Digital CMOS -- Update on Monolithic 3D Integration -- Heterogeneous 3D Integration -- 3D High-Speed Memories Enabling the AI Future -- Minimum Nano-Features with EUV Lithography -- Acquisition of Information -- Machine-Learning Inference -- Multi-Sensor, Intelligent Microsystems -- 3D for efficient, Application-Specific Circuits (ASICs and FPGAs) -- Field-Programmable Arrays -- Coarse-Grained Reconfigurable Architectures -- Graphics-Accelerators and –Processors -- 1,000x Improvement of the Processor-Memory Gap -- Supercomputers -- Deep Learning On-Chip -- Digital

Neural Networks -- Brain-Inspired Spiking-Neurons Systems -- Energy-Autonomous Chip-Systems -- Wearable and Implanted Chips -- Electronics for the Human Visual System -- Subretinal Implants in their Third Decade -- Update on Perception-Inspired HDR Video -- High-Dynamic-Range and High-Color Gamut Video -- Augmented and Virtual Reality -- Machine-Learning for Robotics - Hardware Requirements for Care Robots -- Prospects of Quantum Computing -- Man-Machine Cooperation and Cognitronics.

Sommario/riassunto

In this book, a global team of experts from academia, research institutes and industry presents their vision on how new nano-chip architectures will enable the performance and energy efficiency needed for AI-driven advancements in autonomous mobility, healthcare, and man-machine cooperation. Recent reviews of the status quo, as presented in CHIPS 2020 (Springer), have prompted the need for an urgent reassessment of opportunities in nanoelectronic information technology. As such, this book explores the foundations of a new era in nanoelectronics that will drive progress in intelligent chip systems for energy-efficient information technology, on-chip deep learning for data analytics, and quantum computing. Given its scope, this book provides a timely compendium that hopes to inspire and shape the future of nanoelectronics in the decades to come. .