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Sommario/riassunto	This book aims to convey the most recent progress in hardware-driven neuromorphic systems based on semiconductor memory technologies. Machine learning systems and various types of artificial neural networks to realize the learning process have mainly focused on software technologies. Tremendous advances have been made, particularly in the area of data inference and recognition, in which humans have great superiority compared to conventional computers. In order to more effectively mimic our way of thinking in a further hardware sense, more synapse-like components in terms of integration density, completeness in realizing biological synaptic behaviors, and most importantly, energy-efficient operation capability, should be prepared. For higher resemblance with the biological nervous system, future developments ought to take power consumption into account and foster revolutions at the device level, which can be realized by memory technologies. This book consists of seven articles in which most recent research findings on neuromorphic systems are reported in the highlights of various memory devices and architectures. Synaptic devices and their behaviors, many-core neuromorphic platforms in close relation with memory, novel materials enabling the low-power synaptic operations based on memory devices are studied, along with evaluations and applications. Some of them can be practically realized

due to high Si processing and structure compatibility with contemporary semiconductor memory technologies in production, which provides perspectives of neuromorphic chips for mass production.