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architectures [2-3]. Developing a neuromorphic architecture at the chip level by mimicking biological systems is another important direction. However, a biological scale hardware implementation based on traditional CMOS devices requires extremely high design complexity and cost, which is impractical. MEMRISTOR-BASED COMPUTING ARCHITECTURE: DESIGN ...units, significantly increased parallelism and reduced energy budgets. Such architectures have been demonstrated in neuromorphic implementations such as SpiNNaker from the University of Manchester [2], IBM's TrueNorth [3], Intel's

Loihi [4], BrainScaleS built by Heidelberg Low-Power Neuromorphic Hardware for Signal Processing ...The brain can serve as a template for the next generation computing architectures. Our proposed hybrid neuromorphic architecture utilizes MoS₂ based synaptic memtransistor, and exploits random device mismatch of transistors to implement the population coding scheme present in the nervous system. Neuromorphic CMOS-MoS₂ based hybrid system for low power ...IBM's DARPA-funded TrueNorth neuromorphic chip, for example, does its spiking in custom hardware, while Furber's SpiNNaker (Spiking Neural

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