

Realizing brain-inspired computing at multiple levels of inspiration

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Summary: There is a significant need to build efficient computing systems for highly data-centric artificial intelligence applications. Brain-inspired computing is a promising approach. Memory is expected to play a key role in this form of computing, especially emerging resistance-based memories. Given a lack of comprehensive understanding of the working principles of the brain, I would advocate a multi-stage approach to brain-inspired Computing at different levels from in-memory computing using emerging memories to neuromorphic computing systems that perform computing with an architecture similar to the brain with physically instantiated synaptic weights and neurons. Finally, spiking neural networks based on resistive memories can be viewed as the third level of brain-inspired computing.

Biography: He was a contributor to several key projects in the space of storage and memory technologies and currently manages the research effort on in-memory computing at IBM Zurich. He was awarded the European Research Council (ERC) consolidator grant and the Ovshinsky Lectureship Award in 2015 and 2019, respectively.



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