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Neuroscience and the Future of Computing

Wednesday, March 13, 2019 12:00 PM (30 minutes)

Modern electronic general-purpose computing has been on an unparalleled path of exponential acceleration for more than 7 decades. From the 1970 onwards, this trend was driven by the success of integrated circuits based on silicon technology. The exponential growth has become a self-fulfilling (and economically driven) prophecy commonly referred to as Moore's Law. The end of Moore's law has been augured many times before, but now the economic equation fueling Moore's law is increasingly broken leading to actual technology delays. Ground rule scaling of the underlying technology is expected to saturate in less than 10 years. If computational performance needs to keep increasing beyond this horizon, alternative sources of advancements will have to be found. We will have to rely much more than before on software innovations, specialized chips and ultimately new computing paradigms. This talk will cover these challenges and will discuss which role neuroscience may play in the search for novel computing paradigms, in particular neuromorphic computing.

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