

Special Issue

Advances in Memristors, Memristive Devices and Systems

Message from the Guest Editor

With the recent advances in artificial intelligence (AI) technology, memristor devices and systems have received significant interest as a building block for deep neural network and spiking neural network. A two-terminal memristor device has been developed for highly scalable and low-energy consuming electronic synapse and neuron devices. The functions of biological synapses and neurons can easily be emulated using memristors, including long and short-term potentiation/depression, spike-timing dependent plasticity, and leaky integrate-and fire. Using these unique features of memristor, the memristor system has successfully demonstrated various neural networks such as deep neural network, convolutional neural network, recurrent neural network, reinforcement learning, and spiking neural network. These demonstrations increase researchers' access to memristor devices and systems and speed up the development of hardware-based in memory computing for energy-efficient AI technology. Therefore, the goal of this Special Issue is to present research papers and review articles that focus on novel device engineering in memristors and its use for various neural network applications.

Guest Editor

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