



Photonic Enabled Neural Network: Key Components, Heterogeneous Architecture and Intelligent Applications

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Message from the Guest Editors

The development of novel computing hardware and architecture is of great strategic and economic significance to the leap-forward progress of artificial intelligence technology in the post-Moore era, and photonic enabled neural networks have become the disruptive path for future computing architecture due to their huge advantages in terms of processing speed and power consumption. In recent years, various integrated photonic neural networks, based on MZIs or microring resonators, have been proposed to accelerate the matrix operations. In addition, photonic computing architecture including convolutional neural networks, recurrent neural networks, and programmable reservoir computing systems are riding the wave of implementing large-scale intelligent applications such as vision, voice, and natural language classification. The purpose of this Special Issue is to highlight the progress in photonic-enabled neural networks, including key components, heterogeneous architectures, and intelligent applications. We believe that photonic involvement will foster new technologies for disruptive computing devices and architecture.

