Special Issue

Parallel Deep Neural Networks: Theory, Methods and Applications

Message from the Guest Editor

Deep Neural Networks are both computation and data-intensive which poses key challenges during both inference and training phases. On one hand, model inference is expected to be deployed onto mobile platforms with restricted power and form factor budget, but with real-time performance requirements. On the other hand, with the increase of the size of the datasets, multi-modality of data, and the complexity of the models, algorithmic/software optimization for training on high-performance general-purpose architectures as well as hardware acceleration through specialized architectures are also critically important. Furthermore, as research in this field progresses, the focuse is on multi-purpose network architectures, adapted to a wide range of downstream tasks, with billion of parameters, that are becoming deeper and more interconnected. This situation will become even more important with new advances coming at an increasing pace creating unexplored opportunities for parallelization and programming frameworks to design parallel and distributed algorithms-architectures.

Guest Editor

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As the world of science becomes ever more specialized, researchers may lose themselves in the deep forest of the ever increasing number of subfields being created. This open access journal Applied Sciences has been started to link these subfields, so researchers can cut through the forest and see the surrounding, or quite distant fields and subfields to help develop his/her own research even further with the aid of this multi-dimensional network.

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