

Special Issue - Call for Papers

Concurrency and Computation: Practice and Experience

Convergence of Deep Machine Learning and Parallel Computing Environment for Bio-Engineering Applications

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Aim and Scope:

Deep machine learning is an emergent area in the field of computational intelligence (CI) research concerned with the analysis and design of learning algorithms, representations of data, at multiple levels of abstraction. Deep learning is a technique for implementing machine learning that provides an effective solution for parallel computing environment in bi-engineering problems that encompasses Artificial Intelligence (AI), artificial neural network, reasoning, natural language processing it will be helpful to human intelligence and decision making process.

The heterogeneous parallel computing architectures has been key for real-time bio-engineering application that needed a design of a high-level operating system for matching

the processing tasks to the appropriate machine learning paradigm in a mixed-machine parallel system. This effort finds to investigate the feasibility of a deep machine learning technique for implementing a high-level operating system for heterogeneous parallel computers.

The new frontier research era and convergence of deep machine learning and parallel computing with reference to bio-engineering has three main streams needs to be addressed in the current scenario: bio informatics, medical imaging, and sustainable engineering. This special issue is integrating machine learning, cognitive neural computing parallel computing paradigms, advanced data analytics and optimization opportunities to bring more compute to the bio-engineering problems and challenges. Further, it is importance to make a note that convergence of parallel computing architectures, deep machine learning and its intelligence techniques has not been adequately investigated from the perspective of bio engineering research streams (bio-informatics, medical imaging, and sustainable engineering) and its related research issues.

Furthermore, there are many noteworthy issues (health informatics, bio-image informatics energy efficiency etc) that need to be addressed in the context of deep machine learning, parallel computing and bio engineering. Obviously, these challenges also create immense opportunities for researchers. For the aforementioned reasons, this special issue focuses to address comprehensive nature of cognitive neural computing, parallel computing and to emphasize its character in human intelligence and learning systems, complex analysis tasks mimic human cognition and learning behaviour, prediction and control of bio-engineering systems. This special issue intends to give an overview of state-of-the-art of issues and solution guidelines in the new era of deep machine learning paradigm and its recent trends of techniques for bio engineering. Proposed submissions should be original, unpublished, and present novel in depth fundamental research contributions either from a methodological/application perspective in understanding the fusion of deep machine learning paradigms and their capabilities in solving a diverse range of problems in for bio-engineering and its real-world applications.

Topics of Interest:

We seek original and high quality submissions related to one or more of the following topics:

- Theoretical results on representation of deep learning and parallel architectures for bio engineering
- Parallel Machine Learning and Deep Learning approaches for Bio-informatics
- Parallel programming, architectures and machine intelligence for bio engineering
- Deep Randomized Neural Networks for Bio-engineering applications
- Artificial Intelligence enhance parallel computing environments
- Parallel computing, graphics processing unit (GPU) and new hardware for deep learning in Computational Intelligence research
- Novel feature representation using deep learning, dictionary learning for face, fingerprint, ocular, and/or other biometric modalities
- Novel distance metric learning algorithms for biometrics modalities
- Machine learning techniques (e.g., Deep Learning) with cognitive knowledge acquisition frameworks for sustainable energy aware systems
- Deep learning and semi-supervised and transfer learning algorithms for medical imaging
- Biological plausibility/inspiration of Randomized Neural Networks
- Genomic data visualisation and representation for medical information
- Applications of deep learning and unsupervised feature learning for prediction of sustainable engineering tasks.
- Inference and optimization with bio-engineering problems

Important Dates

May 15, 2018: Deadline for paper submission

August 1, 2018: First-round decision notification

October 1, 2018: Revised submissions due

December 1, 2018: Second-round decision notification

January 15, 2019: Final decision notification

Submission Guidelines

All submitted papers must be clearly written in excellent English and contain only original work and cutting-edges survey, which has not been published by or is currently under review for any other journal or conference. All papers submitted to this Special Issue will undergo the standard peer-review procedures.