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EDITORIAL

# Editorial

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In the recent release of the report on journal citation index for journals, the impact factor for Memetic Computing was 2.205. The significant improvement (as compared to 0.9) in the impact factor is a clear indication of the growing technical influence of this journal in the memetic computing community. Meanwhile, there has also been a significant increase in the number of submissions to this journal. For this issue, we put together 6 papers, discussing a good mix of novel algorithms and techniques together with some real-world applications. Among the 6 papers selected for this issue, the first two papers feature extreme learning machines (ELM), which has emerged as a formidable technique in machine learning. From a memetic perspective, the ELM in its basic form is essentially feedforward neural networks trained in a non-iterative manner. It can be viewed as representation of memes which implicitly encode the procedures or knowledge for problem-solving.

The first paper in this issue discusses online sequential batch learning using ELM. In this era of big data, various issues on mining useful knowledge from data have surfaced. The widespread models for training in light of the diversity and massiveness of data have posed a challenge for machine learning techniques. Huang and co-workers in their paper address the issue of learning from massive data using MapReduce. In many real-world situations, data becomes available incrementally. To address this, they configure a parallel batched online sequential extreme learning using MapReduce framework. The validation of their work on real and synthetic data has shown comparable accuracy with greater training efficiencies.

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The next paper featured in this issue is by Cheng, Liu and Xu. It focuses on sparse signal representation. In particular, they learn a dictionary from a set of training signals using K-SVD, making use of a denoising deep extreme learning machine for sparse representation auto-encoding to generate a more optimized representation to improve the performance of K-SVD. Their stacked auto-encoding deep structure showed comparable performance in terms of speed and accuracy in experiments with real-world data sets.

For improving of production efficiency, the U-shaped assembly line balancing is one of the common setup adopted to streamline manufacturing process flow. The problem involves optimization of assembly line subject to one or more objectives through the assignment of tasks to sequential station arrays according to precedence relationships between tasks. Sahin and Kellegoz address this NP-hard problem by means of grouping genetic algorithm with the objective of minimizing the overall cycle time. The approach resulted in high quality solutions with acceptable computation time.

Zhang, Jin and Wang in their paper describes image stitching based on optimal scale-invariant feature transform method for unmanned aerial vehicles with panoramic vision. It is formulated as a multi-image matching problem, using invariant local features to link up the image frames. To achieve faster and more accurate features extraction, the authors proposed a geometric algebra shift-invariant method. They further incorporated adaptive thresholding to deal with the issue of high computation load.

The Hammerstein and Wiener models are two typical nonlinear block-oriented models of characterizing processes and are easily identifiable. They require fewer calculations, and are efficient in approximating many industrial processes. In their paper, Jia and Feng present a neuro-fuzzy dynamical system to model the non-linearity of Hammerstein-Wiener processes. Their approach overcomes the limitations associ-

ated to polynomial approach, in particular the initialization and convergence of model parameters through trial and error procedure. The versatility of their approach besides identification of the Hammerstein-Wiener process through combined separable signals, allows for the separation of linear and nonlinear parts

The final paper included in this volume discusses a hybrid symbiosis organisms search (HSOS) for optimization. SOS is an optimization algorithm that is inspired by the symbiotic relationships of organisms that occur in nature. The work by Nama, Saha and Ghosh combines SOS with simple quadratic interpolation to enhance the search performance for large scale problems. The approach was validated on real-parameters optimization of benchmark functions and was shown to be effective and efficient, comparable to state-of-art algorithms with further validation on two real-life problems.

It would not be possible to manage all the papers submitted for publication consideration without the help of a team of dedicated Editors. It has become more challenging and with more papers being submitted, the task of discerning the publication worthiness of a paper is daunting. For this, I thank the reviewers who took time to do independent review of the papers submitted. I acknowledge their contributions with sincere gratitude, and not forgetting the effort of the Editors who managed the review of the papers.