Editorial

Meng-Hiot Lim¹

Published online: 15 May 2017
© Springer-Verlag Berlin Heidelberg 2017

If the number of submissions is any indication of the perceived level of acceptance by researchers looking for an outlet to publish their results, then quite clearly this journal has established itself favourably as a channel for publication of research outcome in the field of memetic computation. The increase in the number of publications in the last couple of years has been overwhelming and judging from the submissions received this year, I am optimistic that this trend is set to continue. While I look forward to receiving more submissions relevant to the field, I am pleased to select six papers with good technical contributions in terms of applications as well as analytical and empirical understanding.

The first paper featured in this issue by Khoa et al. focuses on the problem of economic dispatch in power generation system. Here, the authors use a swarm approach that is based on mean-variance mapping optimization in order to minimize the cost by allocation of thermal generating units to fulfill the load demand. The results of testing reported compare favourably with other published results in the literature.

The second paper deals with mobile sensor networks, which in recent years has received a lot of attention from researchers. The issue of focus is routing tree maintenance. Recognizing that most established methods of routing tree maintenance are more suited or applicable to wireless sensor networks, Xin and co-workers developed a method of routing tree maintenance for mobile sensor networks based on trajectory prediction in order to produce a long term stable routing tree. The prediction model is based on the extreme learning machines approach for choosing appropriate parent node followed by a probabilistic method proposed to minimize error and improve accuracy of the routing tree.

In recent years, extreme learning machines (ELM) has emerged as a formidable technique in machine learning. From a memetic perspective, the ELM which in its basic form are essentially feedforward neural networks configured or trained in a non-iterative manner can be viewed as representation of memes which implicitly encode the procedures or knowledge for problem-solving. I am glad to include two papers that describe some innovative enhancements to ELM as classifiers. The first paper by Lu et al. incorporates PSO to derive initial parameters for kernel-ELM to achieve better accuracy, stability and convergence. The second paper by Zhang and Ding extends the kernel-ELM to wavelet kernel to deal with unsupervised and semi-supervised learning.

There are many real-life scenarios of practical significance which involve the placement of facilities that result in maximal coverage. Such location of facilities problems may relate to fields in logistics, production, communication, transportation, services, etc. The basic and classical location problems are formulated as maximum coverage location problem (MCLP) and many real-world problems are modelled as such. The paper by Calderin, Masgosa and Pelta proposed to address the dynamic MCLP using a portfolio of algorithms that involve evolutionary strategy and other simulated annealing methods. Testing on large scale problems suggest that the portfolio of algorithms consistently performs better than the individual constituent algorithms.

Multi-objective optimization has been an important area of research with many significant real-world applications. The final paper of this issue by Castro et al. describes the use of covariance matrix adaptation evolution strategy (CMA-ES), a competitive state-of-art approach for single-objective continuous representation problems. In order to handle multi-objective problems, the authors incorporated modifications into the conventional CMA-ES to manage the multiple objectives. As number of objectives increases, the higher the

✉ Meng-Hiot Lim
emhlim@ntu.edu.sg

¹ Nanyang Technological University, Singapore, Singapore

tendency that the solutions derived are non-dominated. In this work, the authors studied to what extent the effect of injecting information about the objective values of the non-dominated solutions into the search can improve the search performance. Empirical results from testing on two sets of difficult serve as validation of the technique.

I thank all authors for their excellent contributions for this issue and the reviewers who took time to offer their opinion on the publication worthiness of the papers. I am sure

most of us would agree that the voluntary effort to review the manuscripts is a healthy form of collaboration among researchers in the field. By assuming the role of a reviewer, researchers inadvertently share the expertise in promoting a channel for effective dissemination of results and ideas. I acknowledge the contributions of the reviewers with sincere gratitude, and not forgetting the effort of the Editors who managed the review of the papers.