

GUEST EDITORIAL PREFACE

Special Issue on Bridging Metaheuristic and Soft Computing

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This special issue consists of four papers that present various proposals for combining metaheuristic and soft computing. The two research areas have respectively manifested successful applications, while the synergy between them was overlooked in literature. This special issue collects four papers that introduce notions of maximizing the possible collaborations.

In the first paper, Shah, Ghazali, Nawi, and Deris propose a new method named G-HABC (Global Hybrid Ant Bee Colony) to train NNs (Neural Networks). These social based techniques can find best weight values and over trapping local minima in NN learning to recover the BP (Backpropagation) gaps. The simulation result of a hybrid algorithm evaluates ordinary ABC (Artificial Bee Colony), Levenberg-Marquardt (LM) training algorithms. From the studied results, the proposed G-HABC algorithm did get better learning performance for NNs using Boolean Function classification task.

In the second paper, Goyal and Goyal develop Elman NN models with single and multilayer for predicting shelf life of processed cheese stored at 7-8°C. Bayesian regularization was a training algorithm for the models. Mean Square Error, Root Mean Square Error, Coef-

ficient of Determination and Nash-Sutcliffe Coefficient were used for comparing the prediction ability of the developed models. Four input parameters were Body & texture, aroma & flavour, moisture, and free fatty acid. Neurons in two hidden layers varied from 1 to 20. One output parameter was sensory score. Experiments show that Elman model with combination of 4-17-17-1 performed significantly well for predicting the shelf life of processed cheese stored at 7-8°C.

In the third paper Herawan enhanced his previous work to present a relation between rough set and soft set. The idea of rough set-based topological space is proposed to show that a rough set can be considered as a soft set. There are two main steps presented. Firstly, a construction of a quasi-discrete topology using indiscernibility (equivalence) relation in rough set theory is described. Secondly, the paper describes that a general topology is a special case of soft set. It is shown that standard rough set is properly included in soft set. This confirms that soft set theory provides wider study both theoretically and in applications.

The contribution of the fourth paper consists in a SPM (Self-learning Pattern Matching)

approach for applying WSN (wireless sensor networks) to achieve accurate location information in a complicated indoor environment. In the above work, Chang and Chuang consider a Bayesian filtering scheme to remove the noise signal caused by multipath effects. Then, a divide-and-conquer self-learning scheme is proposed to reduce the number of training patterns. In this paper, we apply different training methods including Linear Regression (LR), Gaussian Process (GP), BP Network (BPN), Radial Basis Function (RBF) and Support Vector Regression (SVR) to evaluate the performances of SPM. Experiments show that SPM with SVR has the best results.

Finally, we would like to express our gratitude to all the reviewers for their professional help and their contribution to the success of this special issue and the Editor-in-Chief of IJAMC, Professor Peng-Yeng Yin for his professional assistance which was very helpful to achieve this issue in the best conditions.

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