

GUEST EDITORIAL PREFACE

Special Issue on Current Trends in Soft Computing

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This special issue consists of four papers that present various proposals for combining metaheuristic and soft computing. The comprehensive use of soft computing in a variety of applications makes it an essential tool in the development of products that have implications for the human world. The role model for soft computing is the human mind. Soft computing is a collection of methodologies that intend to utilize the endurance for ambiguity and uncertainty to achieve complete information and provide low cost solutions.

In the first paper, Vahid Nourani, Ehsan Entezari, and Peyman Yousefi propose a hybrid black box model to estimate spatiotemporal value of monthly precipitation. The model contains two steps. In the first step ability of artificial neural networks (ANN) for solving complicated and nonlinear problems is used for temporal estimation of monthly precipitation using the value of precipitation in previous months in the same gauging station. In the second step of the model, Radial Basis Function (RBF) as a linear spatial interpolator is used to estimate the value of precipitation in specific month and a spatial point within the study region, regarding the value of monthly precipitation in other stations.

In the second paper, Fayçal Belkaid, Zaki Sari, and Mehdi Souier developed a genetic algorithm (GA) to solve the parallel machine scheduling problem with consumable resources. To check effectiveness of this algorithm, workers compared it with an exact resolution method, which enumerates all possible solutions for small instances and with a heuristic for large instances. Various randomly generated instances, which can represent realistic situations, were tested by them. Their computation results showed that this algorithm out-performs heuristic procedure, and is tailored for larger scale problems.

The third paper is a survey about the truck and trailer routing problem (TTRP) conducted by Isis Torres Pérez, José Luis Verdegay, Carlos Cruz Corona, and Alejandro Rosete Suárez. The TTRP is an extension of the well-known vehicle routing problem. Defined recently, this problem consists in designing the optimal set of routes for fleet of vehicles (trucks and trailers) in order to serve a given set of geographically dispersed customers. Since TTRP itself is a very difficult combinatorial optimization problem, so it is usually tackled by metaheuristic. The interest in TTRP is motivated by its practical

relevance as well as by its considerable difficulty. The goal of their survey is to show a study on the TTRP and the use of metaheuristic for solving it.

In the fourth paper, Vahid Nourani, Samira Roumianfar, and Elnaz Sharghi investigated the efficiency of some black-box models including ANN and Autoregressive Integrated Moving Average with exogenous input (ARIMAX) models for forecasting the rainfall-runoff-sediment process. Researchers applied a hybrid ARIMAX-ANN model, which is reliable in capturing the periodicity features of the process of rainfall-runoff-sediment modeling of a watershed. The obtained results of the hybrid model application for rainfall-

runoff-sediment of Aharchai watershed, located in Azerbaijan, Iran, revealed that the hybrid model performance is better in prediction rather than the individual ARIMAX and ANN methods.

In the end, I would like to express my 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 useful in achieving this issue in the present form.

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