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Editorial

Advanced intelligent computing theory and methodology

We are very pleased to offer this special issue to the readers of *Pattern Recognition Letters* by selecting the candidate papers from the International Conference on Intelligent Computing (ICIC 2007), held in Qingdao, Shandong Province, China, on August 21–24, 2007. Eleven papers have been selected for inclusion in this special issue, which represent less than 0.25% of all eligible papers accepted at ICIC 2007.

The first five papers deal with pattern classification and information retrieval. Zhong-Qiu Zhao proposed a novel modular neural network to resolve multi-class problems with imbalanced training sets. The experimental results show that the proposed method reduces the time consumption for training and improves the classification performance. Sanggil Kang and Sungjoon Park used neural networks for image classification problems by fusing input features extracted from multiple MPEG-7 descriptors. Dong-Chul Park proposed a classification algorithm for content-based audio retrieval. Experimental results on various data sets demonstrate that the proposed classification algorithm outperforms conventional algorithms such as the traditional Self-Organizing Map (SOM) and the Fuzzy C-Means (FCM) 20.83% and 17.5% in terms of accuracy. Yun Wen Chen and Cun Lu Xu proposed a new approach, referred to as Rolling Penetrate Descriptor method, to shape description for image retrieval and object recognition. The method is tested on several data sets with variations including translation, rotation, scale change, noise, distortion and occlusion, and the results indicate that it has strong capability in handling a variety of shapes. Keke Cai et al. proposed three sentence retrieval models based on Bayesian network. Experiments verify the performance improvements produced by the three models.

The remaining six papers cover various other topics on the application of intelligent computing techniques. Jeen-Shing Wang et al. focused on the development of model dimension/order determination algorithms for determining minimal dimensions/orders of recurrent neural networks using only input–output measurements of unknown systems. The effectiveness of the proposed algorithms was validated through nonlinear dynamic system identification examples. Lifan Liu et al. proposed a new method for decomposition of mixed pixels of multispectral/hyperspectral remote sensing images. Experimental results on simulated and practical remote sensing images demonstrate that the proposed method can get good unmixing results for the decomposition of mixed pixels and is more robust to noise than other methods. Hong

Liu et al. integrated multiple cues into Mean Shift algorithm to extend its application areas of the fast and robust deterministic searching method. Guoyan Zheng and Xuan Zhang presented a novel parameter decomposition approach for automatic pose estimation of distal locking holes from single calibrated fluoroscopic image. Xiaoxia Zhang and Lixin Tang presented a novel hybrid ant colony optimization approach to solve the vehicle routing problem. The experimental results showed that the proposed method is competitive to solve the vehicle routing problem compared with the best existing methods in terms of solution quality. Jae-Ung Yun et al. presented a simple and robust face detection algorithm that can be utilized to video summary. The proposed method is applicable to video summary because of its high performances with low complexity.

It should be stressed that the selection of the ICIC 2007 papers to be submitted to this special issue was done by the International ICIC 2007 Program Committee, and the final selections were made on the basis of quality, novelty, theoretical or practical importance. All papers have been subjected to up to three rounds of strict review with a minimum of three reviewers per paper, reflecting the important trend for increasing quality of the ICIC papers. We hope that you find reading through this special issue both enjoyable and useful.

The Guest Editor would like to take this opportunity to thank all the authors for their contributions to this special issue, the reviewers for their valuable input, insight, and expert comments, and the Special Issue Editor-in-Chief, Dr. Gabriella Sanniti di Baja, and the Editor-in-Chief, Professor T.K. Ho, for their valuable advice and strong support in the preparation of the final presentation of this special issue.

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