Editorial Preface

Special Issue on Recent Advance of Multimedia Big Data

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Multimedia is increasingly becoming the "biggest big data" as the most important and valuable source for insights and information. The pervasiveness of mobile devices & consumer electronics and the popularity of Internet & social networks have generated huge amounts of multimedia information in various media types (such as text, image, video, and audio) shared among a large number of people. This creates the opportunities and intensifies the interest of the research community in developing methods to address multimedia big data challenges for real world applications. Providing solutions to multimedia data such as images and videos brings about a higher level of difficulty at attempting to understand their semantic meaning.

The special issue aims at presenting a collection of high quality research papers on the state-of-the-art in the emerging technologies for the applications of multimedia big data analysis. There are 7 papers have published in this issue, which focused on multimedia big data processing. Recently, many issues are still waiting for solution in this area. In particular, the research of multimedia big data analysis and mining are important.

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In this regard, the first article by X. Zhang proposes a novel method for enhancing radar angular resolution in multimedia big data navigation radar system. The author designed a new scanning model on the basis of quadratic programming theory, by using the proposed Gradient Projection (GP) algorithm. Simulations experiments shows the resolution ratio of the proposed method reaches 4~11 times than some other method. Moreover, the experiments show the proposed method can also suitable for some other angular super-resolution methods.

The second article "A New Intelligent Optimization Network Online Learning Behavior in Multimedia Big Data Environment" proposes a hybrid clonal selection differential evolution optimization algorithm based on clonal selection algorithm and differential evolution in multimedia big data environment. The proposed intelligent optimization algorithm treats each e-learning behavior of the user as an antibody, and gets the best results of multimedia big data mining by a number of iterative searches. Experimental results show the feasibility and effectiveness of the proposed intelligent optimization algorithm.

The third article presents a novel double - energy fuzzy control algorithm for battery-super capacitor based on particle swarm optimization (PSO). The proposed algorithm can avoid falling into

local optimum and being over reliance on prior knowledge by using the swarm intelligence global optimization and evolutionary operation. The simulation results show that this method can improve the vehicle performances in the large extent and verify the effectiveness of the control strategy. It is very important for improving the development and research level and promoting industrialization process of pure electric vehicles.

In the fourth article, an algorithm for skew detection employing hierarchical projection is proposed. Projection histograms at various directions in a given range are acquired according to an initial angle step length. Experimental results show the algorithm has such advantages as fast processing speed, high detection accuracy, insensitivity to noise and suitable for complex layout.

The fifth article aims to evaluate the performance of some state-of-the-art features for static finger spelling of alphabets in sign language recognition. The comparison experiments were implemented and tested using two popular data sets. Based on the experimental results, analysis and recommendations are given on the efficiency and capabilities of the compared features.

The sixth article designed a virtual machine (VM) placement strategies which considered the migration objectives as QoS (Quality of Service), resource competition and energy consumption, and the VM migration time. Experiment results show that the multi-objective optimization management method with TOPSIS can achieve lower service-level agreement (SLA) violation rate, less energy consumption and better balance among different objectives.

The last article the digital multimedia signal entropy features are simulated and analyzed, and the feature selection algorithm is used to select the optimal feature subsets, and redundant features are removed. Finally, the neural network classifier is used to analyze the signal classification ability of the feature subset. The simulation results show that the optimal feature subset selected by the feature selection algorithm has the best classification and recognition performance.

We hope that new researches and applications in this exciting field are interesting and helpful. The authors listed are all experienced researchers of the field, have already published high-level papers in this area.

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