

GUEST EDITORIAL PREFACE

Special Issue on the 14th International Symposium on Knowledge and Systems Sciences and the 12th International Workshop on Meta- Synthesis and Complex Systems

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The fourth issue of the International Journal of Knowledge and Systems Science includes 5 papers contributed by 12 authors and co-authors from 6 universities or national institutes in China and Japan. 3 Papers are selected from the 14th International Symposium on Knowledge and Systems Sciences, held in Ningbo during October 25-27, 2013. KSS2013 is the annual event of the *International Society for Knowledge and Systems Sciences*, one member of International Federation for Systems Studies (IFSR), located in Vienna. Each KSS2013 paper was reviewed by 2 experts, whose comments were replied as authors modified their paper for KSS2013 and then extended after on-site presentations for journal publication. Another 2 papers are selected from the 12th

International Workshop on Meta-synthesis and Complex Systems (MCS2012), jointly held with the 2012 International Conference on Active Media Technologies, one of 5 conferences of the 2012 World Intelligence Congress held in Macau during December 4-7, 2012. The MCS workshop series has been organized and supported by CAS Institute of Systems Science and Systems Engineering Society of China since 2001. MCS'2012 papers were reviewed by at least 3 referees.

The 1st paper, “*Relationship Conflicts Modeling and Measuring Within Work Teams*”, by J. N. Wu and F. Lei, studies the relationship conflicts resulted from knowledge exchange and share between team members of multiple disciplines when completing the complex tasks.

That is quite interesting topic among knowledge management research and practice. Empirically relationship conflicts are considered negative for completion of tasks. The authors develop a method to model and measure relationship conflicts. Simulations are conducted and the results show that relationship conflicts are generated and evolved with knowledge transfer between team members. The relevant factors to relationship conflicts as well as team creativity are analyzed from the personality point of view. Two important conclusions are obtained. One is that team creativity is influenced by both conflicts and individual's personality such as introvert or extrovert. Another is that flat teams have higher creativity than layered teams.

The 2nd paper, "*Kansei Evaluation of Product Recommendation based on a Partial Comparison Process*", by J.-Z. Jin and Y. Nakamori, introduces one research relevant to Kansei engineering, created by Japanese scholars. Kansei and contextual data, usually collected from customers, are useful representations of customers' expectations and evaluations. This paper proposes approaches to Kansei and contextual data representation and linguistic information aggregation. Those methods are finally evolved into computerized support systems for practical application.

The 3rd paper, "*A New Back-Propagation Neural Network Algorithm for a Big Data Environment based on Punishing Characterized Active Learning Strategy*", by Q. H. Zhao, F. Ye and S. Y. Wang, studies the active learning strategy to the classical back-propagation neural network algorithm. To deal with big data, punishment featured active learning BP algorithm (PCAL-BP) is proposed to improve the efficiency of complex data learning. Numerical analysis shows that the PCAL-BP algorithm is superior to the classical BP neural network algorithm in both learning efficiency and precision. The advantage is more prominent with extensive sample data. The authors find more choices exist when processing data in the era of big data. One option is to "waste" the data to improve accuracy and reduce processing time.

The 4th paper, "*Linguistic Multi-attribute Decision Making with a Prioritization Relationship*", by C. P. Wei, X. J. Tang and X. J. Wang, focuses on linguistic information aggregation problems where a prioritization relationship exists over attributes. A prioritized 2-tuple ordered weighted averaging (PTOWA) operator is defined to aggregate satisfactions of alternatives under attributes with a linear prioritized order. Based on the PTOWA operator and the TOWA operator, the authors propose one method to aggregate the satisfactions of an alternative when attributes are partitioned into some categories of priorities. Illustrative examples are employed to show the feasibility of the proposed method.

The 5th paper, "*Collective Threshold Model Based on Utility and Psychological Theories*", by Z. P. Li and X. J. Tang, investigate critical phase transition characteristic of collective actions by considering the mechanisms of both rational utility and psychological threshold based on the Granovetter threshold model proposed in 1978. Numerical simulations are conducted to observe the collective dynamics with consideration of both spatial factor and social network friendship density. The results show the activation threshold model with both utility and psychological thresholds included is more stable in phase transition than that in the classic model. While neither spatial factor nor friendship network density has big impact on final equilibrium of collective behavior. The authors then conclude that the classic model is more appropriate to depict riot, strike and similar unexpected outbreak of social events while the model with utility and psychological threshold is suitable to depict human economic behaviors, e.g. innovation and technological spreading. However, more experimental and empirical evidences are needed to verify the effectiveness of the proposed model.

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Shouyang Wang is one full professor and vice president of Academy of Mathematics and Systems Science, Chinese Academy of Sciences. He is the current president of International Society for Knowledge and Systems Science since 2009 and the president of Systems Engineering Society of China since 2010.