International Journal of Innovative Computing, Information and Control
Volume **7**, Number **6**, June **2011**

ICIC International ©2011 ISSN 1349-4198
pp. **3033–3034**

SPECIAL ISSUE ON HYBRID INTELLIGENT SYSTEMS

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Received March 2011

Since the Dartmouth conference in 1956, the study on artificial intelligence had been initiated to pursue the creation of thinking machines. After decades, many paradigms inspired by various approaches of computational intelligence have been presented and applied in engineering. These paradigms include Neural Networks, Fuzzy Logic, Evolutionary Computing, Swarm Intelligence, Ant Colony and so on. More and more engineering/commerce applications collaborating with recent Information Communication Technology (ICT) such as Image Processing, Computer Networks, Wireless Communication, Multimedia, etc., demonstrate a new era of Intelligent Systems.

This special issue on Hybrid Intelligent Systems is to publish original papers on the last development at *The Ninth International Conference on Hybrid Intelligent Systems (HIS09)* which was held in Liaoning Province, China, on August 12th-14th, 2009. Papers were invited on topics of architectures and applications, Soft Computing for Image and Signal Processing, Intelligent Internet Modeling, Communication and Networking, Intelligent Data Mining, Computational Biology and Bioinformatics, Intelligent Business Information Systems, Soft Computing for Control and Automation, Multi Agent Systems and Applications, Intelligent Sensor Network and Systems, Optimization and Decision Making, Intelligent Machine Learning, Intelligent Digital Watermarking and DRM.

Lots of submissions are received and reviewed at least by two professionals to comply with the quality demanded by IJICIC editorial board. After solid reviews and revisions, nine papers are accepted to be published in this special issue. Certainly, the published papers demonstrate the results of the state-of-the-art research in the development of intelligent systems. The first paper entitled as "Integrating Validation Incremental Neural Network and Radial-Basis Function Neural Network for Segmenting Prostate in Ultrasound Images", written by Chuan-Yu Chang, Yuh-Shuan Tsai and I-Lien Wu, proposes an automatic prostate segmentation system for transrectal ultrasound images to eliminate the process of manual outlining the prostate region. The second paper entitled as "An Adaptive Liner Regression Approach to Still Image Compression", contributed by Chin-Chen Chang and Yeu-Pong Lai, presents an adaptive regression method applied to

the standard JPEG compression for archiving higher compression ratios and lower computation complexity. Authored by Tien-Szu Pan, Mong-Fong Horng, Chien-Chou Shih and Bei-Hao Su, the third paper addresses "An Intelligent TCP Vegas to Support Long-Distance High Speed Networks" to improve the throughput of long-distance connection on the Internet by an intelligent TCP flow controller. The fourth paper "Wavelet Denoising of the Noise Estimation on Phase Matching", presented by Peng Wu, Jie Liu and Jingjiao Li, describes new phase-matching noise estimation methods to accurately estimate real-time noise by the estimation of noise difference. The fifth paper is named "A Modified Particle Swarm Optimization with Feasibility-Based Rules for Mixed-Variable Optimization Problems" in which Chaoli Sun, Jianchao Zeng and Jeng-Shyang Pan propose the applying of the average velocity of the swarm as a disturbance to expand the search range for each particle to overcome the premature convergence problem. The sixth paper, "An Efficient Mutual Authentication Protocol for RFID Systems", authored by Iuon-Chang Lin, Chi-Wei Wang, Rui-Kun Luo and Hsin-Chiang You, presents the exploration of the security issues of the RFID EPC Class 1 Generation 2. The seventh paper, "Region-Based Touched Character Segmentation in Handwritten Words", written by Fajri Kurniawan, Mohd Shafry Mohd Rahim, Daut Daman, Amjad Rehman, Dzulkifli Mohamad and Siti Mariyam Shamsuddin, implements a Self Organizing Feature Map (SOM) to identify the touching portion of the cursive words. Hongbo Liu, Ajith Abraham, Weishi Zhang and Sean Mcloone in the article "A Swarm-Based Rough Set Approach for fMRI Data Analysis" propose an approach based on exploiting the power of particle swarm optimization to discover the feature combinations in an efficient manner by observing the change in positive region as the particles proceed through the search space. The last paper focuses on "An Intelligent RFID Fall Notification System" written by Yeong-Lin Lai and Chih-Cheng Chen and deals with an intelligent fall notification system using radio frequency identification (RFID) technology integrated with wireless sensor networks. We hope this special issue motivates researchers to explore the theory and practices of intelligent systems in future.

Finally, we sincerely thank the contributive authors and reviewers for their dedicated effort on excellent works. Also we all appreciate deeply for Executive Editor of IJICIC, Professor Yan Shi, for his hard work to make the special issue possible and premium.