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Editorial

Selected Papers from the 7th International Conference on Computational Intelligence and Security (CIS'2011)

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International Conferences on Computational Intelligence and Security (CIS conferences) are high quality annually international conferences originated from 2005, and most of CIS'2005 to CIS'2011 received more than 700 submissions, but the rate of accepted papers for almost CIS conferences was fewer than 20%. CIS'2011 was held in Sanya, Hainan Province, China, on December 3-4, 2011. In recent years, there has been a growing interest in the field of computational intelligent and security as well as their applications. Many novel algorithms and their new applications have been developed. They are widely applied to our daily life to solve realistic problems in various fields including science, engineering, management, and games. The aim of CIS'2011 is to bring together researchers, engineers, developers, and practitioners working in two crucial fields: computational intelligence (CI) and information security (IS), to share the experience, exchange, and cross-fertilize ideas. In this special issue, we try to select a part of high quality extended and revised papers from CIS'2011 on new computational algorithms and their new applications.

Among them, there are 5 papers on new algorithm and new model design. In "*A recurrent neural network for nonlinear fractional programming*" authored by Q.-J. Zhang and X. Lu from Management Department, City College of Dongguan University of Technology, Guangdong, China, a novel recurrent time continuous neural network model is proposed. It performs nonlinear fractional optimization subject to interval constraints on each of the optimization variables. The network is proved to be complete in some mild conditions. It is also shown that the network is primal and globally convergent. Simulation results demonstrate the good performance of the proposed neural network for nonlinear fractional

programming problems with interval constraints. In "*An emotional agent model based on granular computing*" authored by J. Hu and C. Guan from School of Software, Nanchang University, China, a new model for emotional agent is proposed to make the agent have the ability of handling emotions based on the granular computing theory and the traditional BDI agent model. Experiment results show that the proposed model is efficient to handle simple emotions. In "*Multiobjective interaction programming problem with interaction constraint for two players*" authored by M. Jiang et al. from College of Business and Administration, Zhejiang University of Technology, China, two definitions of **s**-optimal joint solution are given, and a new algorithm for cooperative multiobjective interaction programming problem with interaction constraint for two players (or two agents) is proposed. Then a pricing multiobjective interaction programming model for a bilevel supply chain is set up. Finally, numerical results show that the proposed model is effective. In "*An evolutionary algorithm for solving bilevel programming problems using duality conditions*" authored by H. Li and L. Fang from Department of Mathematics, Key Laboratory of Tibetan Information Processing of Ministry of Education, Qinghai Normal University, China, a new algorithm is proposed for a class of bilevel programming with a linear follower problem. The experiment results indicate the effectiveness of the proposed algorithm. In "*Cluster synchronization for linearly coupled complex networks with identical and nonidentical nodes*" authored by Y. Zhao et al. from College of Mathematics and Computational Science, Shenzhen University, Shenzhen, China, the cluster synchronization of linearly coupled complex networks with identical and nonidentical nodes is studied. Without symmetry assumption, these linearly coupled complex networks could achieve cluster synchronization under certain pinning control schemes. Sufficient conditions guaranteeing cluster synchronization for any initial values are derived by using Lyapunov function methods. Moreover, the adaptive feedback algorithms are proposed to adjust the control strength. Several numerical examples are given to demonstrate the effectiveness of the method.

The remaining papers are focused on applications of new algorithms and new models. In "*FACC: A novel finite automaton based on cloud computing for the multiple longest common subsequences search*" authored by Y. Li and Y. Wang from School of Computer Science and Technology, Xidian University, Xi'an, China, a novel finite automaton (FA) based on cloud computing called FACC is proposed under MapReduce parallel framework. FACC adopts the ideas of matched pairs and finite automaton by preprocessing sequences, constructing successor tables and common subsequences finite automaton to search for MLCS. The computer simulations demonstrate the effectiveness of the proposed algorithm. In "*Competition and integration in closed-loop supply chain network with variational inequality*" authored by G. Zhou et al. from College of Business and Administration, Zhejiang University of Technology, China, the interaction of the competitive firms prior to horizontal merger is analyzed. Three networks including prior to horizontal merger, postpartial merger, and complete merger are studied. Simultaneously, three economical models for these networks on different conditions of mergers are established and discussed. Finally, the proposed models are tested and illustrated by numerical examples. In "*Adaptive neural control for a class of outputs time-delay nonlinear systems*" authored by R. Wang and J. Li from Computer and Information Engineering College, Guangxi Teachers Education University, China, an adaptive neural control for a class of outputs time-delay nonlinear systems with or without perturbation is studied. Based on RBF neural networks, the radius basis function (RBF) neural networks are employed to estimate the unknown continuous functions. The proposed control guarantees that all closed-loop signals remain bounded. The simulation results demonstrate the effectiveness of the proposed control scheme. In "*DynaView: General dynamic*

visualization model for SHM" authored by P. Sun et al. from College of Computer Science, Northwestern Polytechnical University, Xi'an, China, a general dynamic visualization model named DynaView to construct virtual scenes of structural health monitoring (SHM) process is proposed. This model consists of static, dynamic, and interaction submodels. It makes the visualization process dynamic and interactive. The experiments indicate that DynaView model is efficient and practically applicable. In "*Vehicle routing problem with time windows and simultaneous delivery and pick-up service based on MCPSO*" authored by X. Gan et al. from College of Management, Shenzhen University, Shenzhen, China, a new model for the vehicle routing problem with time windows (VRPTW) and two factors is set up. An efficient multiswarm cooperative particle swarm optimization (MCPSO) algorithm is proposed. The experiments indicate the proposed algorithm is effective. In "*Distributional similarity for chinese: exploiting characters and radicals*" authored by P. Jin et al. McCarthy from School of Computer Science, Leshan Normal University, China, and Department of Informatics, Sussex University, Brighton, UK, respectively, the specific properties of the Chinese language are used to improve Chinese word similarity computation. Given a content word, similar words is extracted based on a large corpus and a similarity score for ranking. This rank is then adjusted according to the characters and components shared between the similar word and the target word. Experiments on two gold standard datasets show that the proposed algorithm is efficient.

In "Service Selection of Ensuring Transactional Reliability and QoS for Web Service Composition" authored by Guojun Zhang, Liping Chen and Weitao Ha from College of mathematics and information science, Center of network Engineering technology, Weinan Normal University, Xi'an, China, a selection approach that combines transactional properties of ensuring reliability and QoS characteristics is proposed. In the selection approach, an automaton model to implement transactional-aware service selection is set up by using a Multiple Attribute Decision Making approach to achieve Qos-based optimal service selection. Then, two scenarios of experiment are presented to demonstrate the validity of the selection approach.

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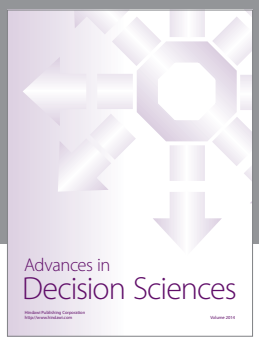

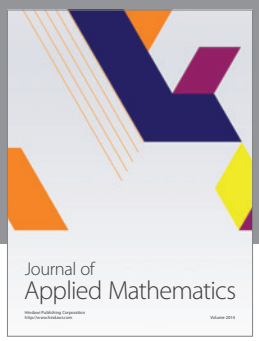

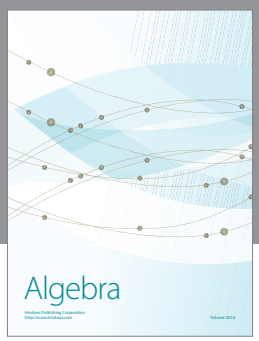

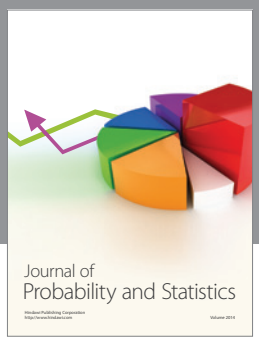

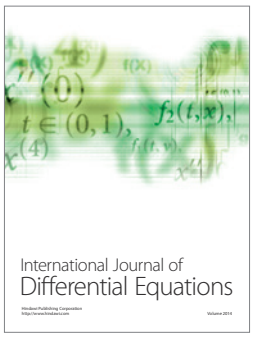

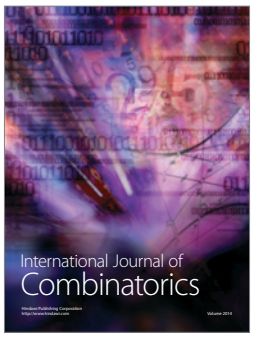

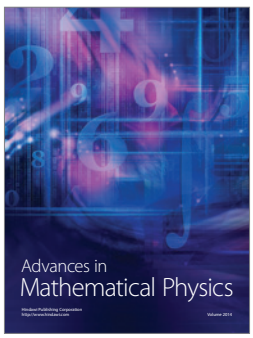

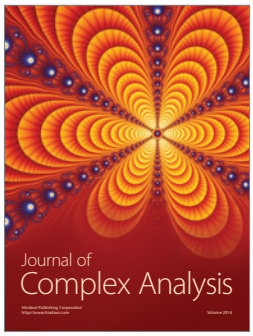

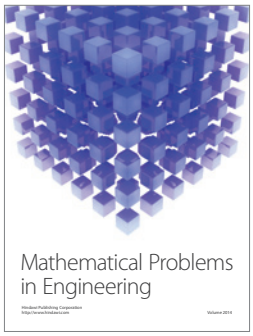

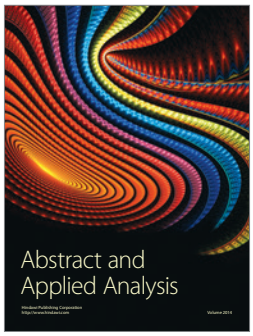

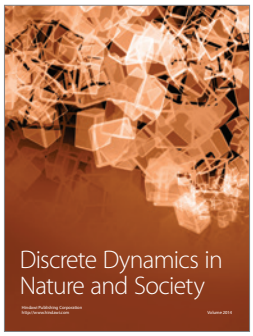

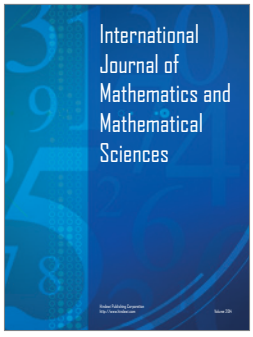

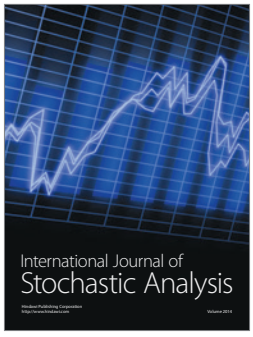

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