

Special Issue on Trends in Hybrid Intelligent Systems

Guest Editorial

Hybridization of intelligent systems is a promising research field of modern artificial/computational intelligence concerned with the development of the next generation of intelligent systems. A fundamental stimulus to the investigations of Hybrid Intelligent Systems (HIS) is the awareness in the academic communities that combined approaches will be necessary if the remaining tough problems in Artificial and computational intelligence are to be solved. Recently Hybrid Intelligent Systems are getting popular due to their capabilities in handling several real world complexities involving imprecision, uncertainty and vagueness.

The paper "A Hybrid System Based on a Filter Bank and a Successive Approximations Threshold for Microcalcifications Detection" propose a new hybrid system for microcalcifications detection in digital mammograms, using the combination of the CDF 9/7 filter bank and a successive approximations threshold. Microcalcifications are low contrast samples and only have a few pixels in diameter which are difficult to detect. (This is a selected paper from HIS Workshop on MICAI'2008).

The paper "Development of a Discrete Event Controller Supervisor using a Hybrid Matrix Formulation with Fuzzy Logic Conflict Resolution" try to explain using a patented matrix formulation, a Discrete Event (DE) controller is designed for a manufacturing cell. The DE controller can directly be implemented from standard manufacturing tools such as the Bill of Materials or the assembly tree. The matrices also make it straightforward to actually implement the DE controller for sequencing the jobs and assigning the resources. We use virtual places to interact with our machine resources to control and supervise the DE system as a transient timed place Petri Net (PN) system. (This is an invited paper).

The paper "Web Service-Security Specification based on Usability Criteria and Pattern approach" describe a specification to assist in the design of usable and secure web-services. In particular, this specification helps design an adequate security information feedback based on User Interface Patterns, the resulting visual feedback is then evaluated against a set of design/evaluation criteria called Human-Computer Interaction for Security (HCI-S). (This is an invited paper).

The paper "A Hybrid System Approach to Determine the Ranking of a Debutant Country in Eurovision" determine that The goal of the present work is to apply the computational properties of cultural technology, such as data mining and, to propose the solution of a real problem about society modeling: the Eurovision Song Contest. Analyze the voting behavior and ratings of judges using data mining techniques. (This is a selected paper from HIS Workshop on MICAI'2008).

The paper "Semi-automatic Generation of Subcategorization Frames for Spanish Verbs Using Ontologies and Verbs Functional Class" deals with the semi-automatic generation of subcategorization frames (SCFs) of Spanish verbs; specifically, given a set of verbs in Spanish and their respective sense, their SCFs are obtained. The acquisition of SCFs in Spanish has been approached in different works: in some the frames are generated manually, while in others they are obtained semi-automatically from a tagged corpus; unfortunately in this case, the results depend on the characteristics of the texts used. (This is an invited paper).

The paper "Improving Distributed Resource Search through a Statistical Methodology of Topological Feature Selection" considered a complex network for its size, interconnectivity and rules that govern are dynamic, because of constantly evolve. For this reason the search of distributed resources shared by users and online communities is a complex task that needs efficient search method. The goal of this work is to improve the performance of distributed search of information, through analysis of the topological features. (This is an invited paper).

The paper "Evolving Optimization to improve Diorama's representation using a Mosaic Image" apply the computational properties of the cultural technology; in this case of corroborating of them by means of Social Data Mining to propose the solution to a specific problem, adapted from the Literature about Social Modelling. Combined with this, analyzed the location of a society represented with its starship with respect to the social and cultural similarity of its neighbors, in a form of popular representation denominated Diorama. (This is an invited paper).

The paper "Resolution of a combinatorial problem using Cultural Algorithms" proposed an algorithm that is used to resolve a famous game known as Japanese puzzles, which are analyzed for obtain the optimal solution, show that Japanese Puzzles are constrained combinatorial optimization problems, which can be solved using Cultural Algorithms. Other features, such the use of a belief space involve many proposed solutions and local search heuristics; can also be taught using these puzzles. (This is an invited paper).

The paper "Musical Recommendation on Thematic Web Radio" described a Musical Recommender System associated to Thematic Web Radio for songs in a database related with this Web Radio employs the Dublin Core metadata standard for the documents description, the XML standard for describing user profile, which is based on the user's profile, and on service and data providers to generate musical recommendations. The main contribution of the

work is to provide a recommendation mechanism based on the user of this Thematic Web Radio reducing the human effort spent on the profile generation. (This is an invited paper).

Many people have given their best efforts to make this Special Issue a successful event. We would like to thank all authors from *Canada, United States, Italy, South Africa, Mauritius, Singapore, Brazil, San Marino and Mexico*, for their submissions, to Dr. George Sun for support our Special Issue with his recommendations, and last but not least the readers for their continued interest, energy and support.

The continuous advances of the computer science, like those reported in this issue, allow day by day the development of new information technologies and their practical application thus contributing to the scientific and technological development of the information society.

These papers: two best from HIS Workshop on MICAI'2009 and seven invited papers represent an innovative named Hybrid Intelligent Systems which is change many paradigms of our lives.

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Alberto Ochoa (Bs' 94-Eng. Master' 00 - PhD' 04 - Postdoctoral Researcher' 06 & Industrial Postdoctoral Research'09). He has 1 book, and 7 chapters in book related with Artificial Intelligence. He has supervised eight thesis of PhD, 11 thesis of Master and 27 thesis of Bachelor. He participated in the organization of HAIS'07, HAIS'08, HAIS'09, ENC'06, ENC'07, ENC'08 and MICAI'08. His research interests include evolutionary computation (especially cultural algorithms), natural processing language, artificial societies and social data mining.



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