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## EDITORIAL

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### HYBRID COMPUTATIONAL INTELLIGENCE AND APPLICATIONS

Dear Colleague,

The concept of computational intelligence is complex and to explain its principle we need many theories, definitions and taxonomies. Their limited success has given rise to the idea that such a multidimensional concept cannot be explained by a single theory. As a result, a multidisciplinary approach has led to remarkable advancement in the theory of computational intelligence. Over the last few decades, several computational intelligence paradigms have been established and recently, hybridization of computational intelligence techniques are becoming popular due to their capabilities in handling many real world complex problems, involving imprecision, uncertainty and vagueness, high-dimensionality.

The objectives of the international meetings fused under the umbrella of the Hybrid Intelligent Systems (HIS) conference series are to increase the awareness of the research community of the broad spectrum of hybrid techniques, to bring together computational intelligence researchers from around the world to present their cutting-edge results, to discuss the current trends in HIS research, to develop a collective vision of future opportunities, to establish international collaborative opportunities, and as a result to advance the state of the art of the field. The Seventh International Conference on Hybrid Intelligent Systems (HIS'07) was successfully organized during September 17-19, 2007 in Kaiserslautern - Germany and gathered individual researchers from over 15 countries. HIS'07 was technically co-sponsored by IEEE Systems Man and Cybernetics Society, Deutsches Forschungsinstitut Für Künstliche Intelligenz (DFKI), Fraunhofer Institut Techno- und Wirtschaftsmathematik (ITWM), the German Chapter of the IEEE Computational Intelligence Society, the Arbeitskreis Bildanalyse und Mustererkennung Kaiserslautern (BAMEK), the World Federation on Soft Computing (WFSC), and Phytect Messtechnik GmbH. The HIS'07 program committee represented 23 countries on 5 continents. All submitted papers were reviewed by at least three independent referees, and in some uncertain cases the number of referees was up to four. Based on the referee's reports, the HIS'07 Program Committee selected 52 papers for oral presentation and 13 papers for poster presentation and the proceedings were published by the IEEE Computer Society.

This special issue comprising of ten papers is focused on various hybrid computational intelligence approaches and its applications. The papers were selected

on the basis of fundamental ideas/concepts rather than the thoroughness of techniques deployed. The papers discuss various hybridization schemes like tuning the performance of support vector machines using the particle swarm optimization for texture analysis, hybrid recommendation system, integration of differential evolution with bacterial foraging for global optimization, multiobjective training of multi-layered perceptrons, artificial immune system with adaptive resonance theory, Bayesian classifier induction using evolutionary algorithms, integration of grey relational neural networks and auto regressive integrated moving average model for time series approximation, hyper-metaheuristics for scheduling and designing directed acyclic graph multiclass structures using genetic algorithms. We hope that these papers will provide the researchers some starting points to develop more new ideas, and the fast publication of these results will help to move this field again one step ahead.

Let me take this opportunity to thank all the authors for their contributions and the reviewers who did a wonderful job in completing the reviews within a short period of time. I am grateful for the efforts of Prof. Dušan Húsek, from the Institute of Computer Science, Academy of Sciences of the Czech Republic and Prof. Václav Snášel, from VSB Technical University Ostrava for inviting me to organize this special issue and all the editorial assistance related to this issue. Finally, many thanks and appreciation to Dr. Dagmar Harmancová (Associate Editor) and other technical staffs of Neural Network World, who helped realizing this special issue within a very short time.

I hope the reader will share our joy and find this special issue very useful. I also welcome you to Hybrid Intelligent Systems 2008! Please join the feast of the Hybrid Computational Intelligence researchers in Barcelona, Spain during September 10-12, 2008!

Ajith Abraham

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<http://his.hybridsystem.com>

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