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Preface

The need for intelligent systems technology in solving real-life problems has been consistently growing. In order to address this need, researchers in the field have been developing methodologies and tools to develop intelligent systems for solving complex problems. The International Society of Applied Intelligence (ISAI) through its annual IEA/AIE conferences provides a forum for international scientific and industrial community in the field of Applied Artificial Intelligence to interactively participate in developing intelligent systems, which are needed to solve twenty first century's ever growing problems in almost every field.

The 23rd International Conference on Industrial, Engineering and Other Applications of Applied Intelligence Systems (IEA/AIE-2010) held in Córdoba, Spain, followed IEA/AIE tradition of providing an international scientific forum for researchers in the field of applied artificial intelligence. The presentations of the invited speakers and authors mainly focused on developing and studying new methods to cope with the problems posed by real-life applications of artificial intelligence. Papers presented in the twenty third conference in the series covered theories as well as applications of intelligent systems in solving complex real-life problems.

We received 297 papers for the main track, selecting 119 of them with the highest quality standards. Each paper was revised by at least three members of the Program Committee. The papers in the proceedings cover a wide number of topics including: applications to robotics, business and financial markets, bioinformatics and biomedicine, applications of agent-based systems, computer vision, control, simulation and modeling, data mining, decision support systems, evolutionary computation and its applications, fuzzy systems and their applications, heuristic optimization methods and swarm intelligence, intelligent agent-based systems, internet applications, knowledge management and knowledge based systems, machine learning, neural network applications, optimization and heuristic search, and other real-life applications.

The main track was complemented with 13 special sessions whose topics included soft computing in information access systems on the web, data preprocessing in data mining, engineering knowledge and semantic systems, applied intelligent systems for future classrooms, soft computing methods for environmental and industrial applications, soft computing in computer vision and image processing, distributed problem solving with artificial intelligence techniques, ensemble learning, interactive and cognitive environments, context information in intelligent systems, data analysis, optimization and visualization for bioinformatics and neuroscience, industrial applications of data mining and semantic and linguistic visual information.

Together, these papers highlight new trends and frontiers of applied artificial intelligence and show how new research could lead to new and innovative

applications. They also show that new trends are appearing to cope with the increasingly difficult new challenges that are faced by artificial intelligence. We hope you will find them interesting and useful for your own research.

The conference also invited five outstanding scholars to give plenary keynotes speeches. They were Nitesh Chawla, from the University of Notre Dame, USA, Óscar Cordón from the European Center for Soft Computing, Spain, Ludmila Kuncheva, from the University of Bangor, UK, José Luis Verdegay, from the University of Granada, Spain, and Pierre Rouzè, from Ghent University, Belgium.

We would like to express our thanks to the members of the Program Committee and all the reviewers of the special sessions for their hard work. This work is central to the success of any conference.

The conference was organized by the Research Group on Computational Intelligence and Bioinformatics of the University of Córdoba jointly with the Soft Computing and Intelligent Information Systems Research Group of the University of Granada in cooperation with the International Society of Applied Intelligence (ISAI).

We would like to thank all members of the organization for their unselfish efforts to make the conference a success. We also would like to thank the University of Córdoba and its Polytechnic School for their support. We would like to thank Springer for their help in publishing the proceedings. We would like to thank our main sponsors, ISAI, as well as our other sponsors: Association for the Advancement of Artificial Intelligence (AAAI), Association for Computing Machinery (ACM/SIGART), Canadian Artificial Intelligence Association (CAIAC), European Neural Network Society (ENNS), International Neural Network Society (INNS), Japanese Society for Artificial Intelligence (JSAI), Taiwanese Association for Artificial Intelligence (TAAI), Taiwanese Association for Consumer Electronics (TACE), and Texas State University-San Marcos.

We would like to thank the invited speakers for their interesting and informative talks of a world-class standard. We cordially thank all authors for their valuable contributions as well as the other participants in this conference. The conference would not have been possible without their support.

Thanks are also due to the many experts who contributed to making the event a success.

March 2009

Nicolás García-Pedrajas
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   Jose A. Gámez and José M. Puerta
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   Jason J. Jung and Dariusz Król
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   Jia-Ling Koh
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   Miguel Á. Salido and Adriana Giret
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10. Context Information in Intelligent Systems
    José Manuel Molina López and Miguel Ángel Patricio
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12. Industrial Applications of Data Mining: New Paradigms for New Challenges
    Cèsar Ferri Ramírez, José Hernández Orallo and María José Ramírez Quintana
13. Semantic and Linguistic Visual Information: Applications
    Jesús Chamorro-Martínez and Daniel Sánchez

Invited Speakers

Nitesh Chawla	University of Notre Dame, USA
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José Luis Verdegay	University of Granada, Spain
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