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SEVENTH INTERNATIONAL CONFERENCE ON

INTELLIGENT SYSTEMS DESIGN AND APPLICATIONS

Luiza M. Mourelle
Nadia Nedjah
Janusz Kacprzyk
Ajith Abraham (Eds.)

Proceedings of the

7TH. INTERNATIONAL CONFERENCE ON INTELLIGENT SYSTEMS DESIGN AND APPLICATIONS

ISDA 2007

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Luiza de Macedo Mourelle
Nadia Nedjah
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Welcome from the General Co-chairs

ISDA 2007

We are very pleased to once again welcome the scientific community to the Seventh International Conference on Intelligent Systems Design and Applications – ISDA'07. This year's edition takes place during October 22–24, 2007, in the State University of Rio de Janeiro – UERJ, which is one of the main public universities in the state of Rio de Janeiro, Brazil.

The ISDA series of conferences attracts a wide range of interests with the development of the next generation of intelligent systems and its various practical applications. A fundamental stimulus to the investigation of intelligent systems is the awareness in the academic and industrial communities that artificial intelligence is the solution both in fundamental research and industry. Current research interests in this field focus on the exploitation and integration of the different computing paradigms of artificial intelligence such as fuzzy logic, neuro-computing, evolutionary computation, probabilistic computing, intelligent agents, machine learning, and other intelligent computing frameworks. The phenomenal growth of intelligent systems and related topics has created the need for this International conference as a venue to present the latest research. ISDA'07 builds on the success of last year's. ISDA'06, which was held in Jinan, China, 16–18, October 2006, attracted participants from over 26 countries. As evident from the general philosophy of ISDA conferences, we have a focus on novel paradigms in artificial intelligence as well as on interdisciplinary approaches. ISDA'07 addresses the following important themes:

- Intelligent Systems Architectures and Applications
- Intelligent Image and Signal Processing
- Intelligent Internet Modeling
- Intelligent Data mining
- Intelligent Business Systems
- Intelligent Control and Automation
- Intelligent Agents
- Intelligent Knowledge Management

ISDA'07 is co-sponsored by Fundação de Amparo à Pesquisa do Estado do Rio de Janeiro – FAPERJ and International Fuzzy Systems Association – IFSA. The conference is also technically co-sponsored by Brazilian Computing Society – SBC, Brazilian Society for Automation – SBA, IEEE Systems Man and Cybernetics Society – IEEE-SMC, The World Federation on Soft Computing – WFSC, European Neural Network Society – ENNS, European Society for Fuzzy Logic and Technology – EUSFLAT.

The ISDA'07 program committee represented 42 countries on 5 continents and received over 350 full paper submissions whose authors are from 38 countries. This certainly attests to the widespread, international importance of the theme of the conference. We would like to thank the ISDA'07 international program committee and the additional reviewers for providing the reviews in time. Our special thanks also go to all the plenary speakers for accepting to be part of ISDA'07 and for providing the very interesting and informed talks to catalyze subsequent discussions.

Our special thanks to Ms. *Silvia Ceballos* of IEEE Computer Society Press for all the support related to the production of the proceedings of this important scientific work. We would like also to thank Mr. *Marcelo Medeiros Carneiro* for his help and nice touch in developing and taking care of the website of ISDA'07 as well as Mrs. *Camilla Vianna* of RD Turismo & Eventos and Mrs. *Mara Soares de Moura* of

Centro de Estudos da Faculdade de Engenharia da UERJ for their assistance with respect to handling the conference finances. Finally, we would like to express our sincere gratitude to all the authors and all the members of the organizing committees that have contributed towards the success of this conference. We look forward to seeing you in the wonderful city of Rio de Janeiro, Brazil, during ISDA'07.

General Co-chairs

Nadia Nedjah,
State University of Rio de Janeiro, Brazil

Ajith Abraham
Norwegian University of Science and Technology, Norway

Welcome from the Program Co-chairs

ISDA 2007

ISDA 2007, the Seventh International Conference on Intelligent Systems Design and Applications, held in Rio de Janeiro, Brazil, on October 22 – 24, 2007, is a unique event that since its launching has played an ever increasing role as an important gathering place for a growing research and scholarly community of broadly perceived intelligent systems.

ISDA 2007 provides a forum for the presentation of new results and developments, but – maybe even more so – a forum for vivid discussions among specialists from diverse areas and diverse countries. As it has been the case with all former ISDA conferences, new ideas and novel projects will certainly emerge as a result.

ISDA 2007 has received about 350 submissions from 38 countries around the world which have been subject to a rigorous and tough peer review process. All papers have been refereed by at least three independent referees and, in some uncertain cases the number of referees has been increased to up to five. Based on the referees' reports, the Program Committee has selected about 187 full papers.

The plenary talks will be focused on crucial topics that have been recently attracting much attention, and will be presented by outstanding experts from the area. We believe all participants will enjoy and benefit from them. The tutorials will be delivered by researchers and each will be a half-day long. These tutorials will certainly be very useful to students, newcomers to their respective fields, as well as practitioners and other researchers.

It is a privilege and honor for us to chair the ISDA 2007 Program Committee. It has been also a rewarding experience and we express our sincere thanks to all the Program Committee members for their cooperation in the shaping of the conference and running the refereeing process. We highly appreciate a hard work and timely feedback of the referees who did an excellent job. Last but not least, we would like to thank all the authors and participants for their interest in ISDA 2007. Thank you for your time and effort in preparing and submitting your papers and your patience through this long process. Your work is the backbone of the conference.

We wish you all a pleasant and fruitful meeting in the wonderful city of Rio de Janeiro, Brazil.

Program Co-chairs

Luiza de Macedo Mourelle
State University of Rio de Janeiro, Brazil

Janusz Kacprzyk
Polish Academy of Science, Poland

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