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Andrzej Dzieliński
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Bernardete Ribeiro (Eds.)

Adaptive and Natural Computing Algorithms

8th International Conference, ICANNGA 2007
Warsaw, Poland, April 2007
Proceedings, Part I

1 Part I

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8th International Conference, ICANNGA 2007
Warsaw, Poland April 11-14, 2007
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Preface

The ICANNGA series of conferences has been organized since 1993 and has a long history of promoting the principles and understanding of computational intelligence paradigms within the scientific community. Starting in Innsbruck, in Austria (1993), then Ales in France (1995), Norwich in England (1997), Portoroz in Slovenia (1999), Prague in Czech Republic (2001), Roanne in France (2003) and finally Coimbra in Portugal (2005), the ICANNGA series has established itself as a reference for scientists and practitioners in this area. The series has also been of value to young researchers wishing both to extend their knowledge and experience and to meet experienced professionals in their fields.

In a rapidly advancing world, where technology and engineering change dramatically, new challenges in computer science compel us to broaden the conference scope in order to take into account new developments. Nevertheless, we have kept the acronym ICANNGA which, since the Coimbra conference in 2005, stands for International Conference on Adaptive and Natural Computing Algorithms.

The 2007 conference, the eighth in the ICANNGA series, took place at the Warsaw University of Technology in Poland, drawing on the experience of previous events and following the same general model, combining technical sessions, including plenary lectures by renowned scientists, with tutorials and workshop panels.

The Warsaw edition of ICANNGA attracted many scientists from all over the world. We received 474 mostly high-quality submissions from 40 countries. After rigorous review involving more than 160 experts in their fields, 178 papers were accepted and included in the proceedings. The acceptance rate was only 38%, enforcing a high standard of papers. The conference proceedings are published in two volumes of Springer's *Lecture Notes in Computer Science*.

The first volume of the proceedings is primarily concerned with issues related to various concepts and methods of optimization, evolutionary computations, genetic algorithms, particle swarm optimization, fuzzy and rough systems. Additionally there is also a set of papers devoted to clustering and classification. The second volume is mainly concerned with neural networks theory and applications, support vector machines, biomedical and biometrics applications, computer vision, control and robotics.

ICANNGA 2007 enjoyed plenary lectures presented by distinguished scientists: Shun-ichi Amari from Japan, Ryszard Tadeusiewicz and Janusz Kacprzyk from Poland, Kevin Warwick and Rafal Zbikowski from England.

We would like to thank the International Advisory Committee for their guidance, advice and discussions. Our special gratitude is devoted to the Program Committee and reviewers. They have done a wonderful job of shaping the conference image.

Camera-ready version of the papers were carefully examined and verified by Wiktor Malesza, Konrad Markowski, Tomasz Toczyski and Maciej Twardy. A number of people from our Electrical Engineering Faculty, the Control Division Staff members and the PhD students were involved in various conference tasks, supporting the conference secretariat and maintaining multimedia equipment. We greatly appreciate all they have done.

We also wish to thank our publisher, especially Alfred Hofmann the Editor-in-Chief of LNCS and Anna Kramer for their support and collaboration.

Finally, the conference was made up of papers and presentations prepared by our contributors and participants. Most of our gratitude is directed to them.

April 2007

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