

Kurosh Madani, António Dourado Correia, Agostinho Rosa, and Joaquim Filipe (Eds.)  
Computational Intelligence

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# Computational Intelligence

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Conference, IJCCI 2010, Valencia, Spain, October 2010

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# Preface

The present book includes extended and revised versions of a set of selected papers from the Second International Joint Conference on Computational Intelligence (IJCCI 2010), held in Valencia, Spain, from 24 to 26 October, 2010.

The purpose of IJCCI is to bring together researchers, engineers and practitioners in computational technologies, especially those related to the areas of fuzzy computation, evolutionary computation and neural computation. IJCCI is composed of three co-located conferences, each one specialized in one of the aforementioned - knowledge areas. Namely:

- International Conference on Fuzzy Computation
- International Conference on Evolutionary Computation
- International Conference on Neural Computation

Their aim is to provide major forums for scientists, engineers and practitioners interested in the study, analysis, design and application of systems.

In the International Conference on Fuzzy Computation (ICFC), modelling and implementation of fuzzy systems, both theoretically and in a broad range of application fields is the main concern. Fuzzy computation is a field that encompasses the theory and application of fuzzy sets and fuzzy logic to the solution of information processing and system analysis problems. Bolstered by information technology developments, the extraordinary growth of fuzzy computation in recent years has led to major applications in fields ranging from medical diagnosis and automated learning to image understanding and systems control.

In the International Conference on Evolutionary Computation (ICEC) modelling and implementation of bioinspired systems namely on the evolutionary premises, both theoretically and in a broad range of application fields, is the central scope. Considered a subfield of computational intelligence focused on combinatorial optimization problems, evolutionary computation is associated with systems that use computational models of evolutionary processes as the key elements in design and implementation, i.e. computational techniques which are inspired by the evolution of biological life in the natural world. A number of evolutionary computational models have been proposed, including evolutionary algorithms, genetic algorithms, the evolution strategy, evolutionary programming, swarm optimization and artificial life.

The International Conference on Neural Computation (ICNC) is focused on modelling and implementation of neural computing systems, both theoretically and also in a broad range of application fields. Neural computation and artificial neural networks have seen an explosion of interest over the last few years, and are being successfully applied across an extraordinary range of problem domains, in areas as diverse as finance, medicine, engineering, geology and physics, in problems of prediction, classification or control. Several architectures, learning strategies and algorithms have been introduced in this highly dynamic field in the last couple of decades.

IJCCI has received 236 paper submissions from 49 countries in all continents. 30 papers were published and presented as full papers, i.e. completed work, 53 papers reflecting work-in-progress or position papers were accepted for short presentation, and another 30 contributions were accepted for poster presentation. These numbers, leading to a “full-paper” acceptance close to 13% and a total oral paper presentations acceptance ratio of about 35%, show the high quality of this forum, to be preserved in the next editions of this conference. This book includes revised and extended versions of a strict selection of the best papers presented at the conference.

Furthermore, IJCCI 2010 included 4 plenary keynote lectures given by James Bezdek, Antonio Sala, Simon M. Lucas and Panos Pardalos. We would like to express our appreciation to all of them and in particular to those who took the time to contribute with a paper to this book.

On behalf of the Conference Organizing Committee, we would like to thank all participants. First of all to the authors, whose quality work is the essence of the conference and to the members of the Program Committee, who helped us with their expertise and diligence in reviewing the papers. As we all know, producing a post-conference book, within the high technical level exigency, requires the effort of many individuals. We wish to thank also all the members of our Organizing Committee, whose work and commitment were invaluable.

September 2011

Kurosh Madani  
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