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# Hybrid Artificial Intelligent Systems

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# Preface

This volume of *Lecture Notes in Artificial Intelligence* (LNAI) includes accepted papers presented at HAIS 2013 held in the beautiful and historic city of Salamanca, Spain, in September 2013.

The International Conference on Hybrid Artificial Intelligence Systems (HAIS) has become a unique, established, and broad interdisciplinary forum for researchers and practitioners who are involved in developing and applying symbolic and sub-symbolic techniques aimed at the construction of highly robust and reliable problem solving techniques, and bringing the most relevant achievements in this field.

Hybridization of intelligent techniques, coming from different computational intelligence areas, has become popular because of the growing awareness that such combinations frequently perform better than the individual techniques such as neurocomputing, fuzzy systems, rough sets, evolutionary algorithms, agents and multiagent systems, and alike.

Practical experience has indicated that hybrid intelligence techniques might be helpful for solving some of the challenging real-world problems. In a hybrid intelligence system, a synergistic combination of multiple techniques is used to build an efficient solution to deal with a particular problem. This is, thus, the setting of HAIS conference series, and its increasing success is the proof of the vitality of this exciting field.

HAIS 2013 received 218 technical submissions. After a rigorous peer-review process, the International Program Committee selected 68 papers that are published in this conference proceedings.

The selection of papers was extremely rigorous in order to maintain the high quality of the conference and we would like to thank the Program Committee for their hard work in the reviewing process. This process is very important to the creation of a conference of high standard and the HAIS conference would not exist without their help.

The large number of submissions is certainly not only testimony to the vitality and attractiveness of the field but an indicator of the interest in the HAIS conferences themselves.

HAIS 2013 enjoyed outstanding keynote speeches by distinguished guest speakers: Prof. Hojjat Adeli - Ohio State University (USA), Prof. Hujun Yin - University of Manchester (UK), and Prof. Manuel Graña - University of Pais Vasco (Spain).

HAIS 2013 teamed up with the *International Journal of Neural Systems* (WORLD SCIENTIFIC), *Integrated Computer-Aided Engineering* (IOS PRESS), *Neurocomputing* (ELSEVIER), and the *Applied Soft Computing* (ELSEVIER) journals for a set of special issues and fast track including selected papers from HAIS 2013.

Particular thanks also go to the conference main Sponsors, IEEE-Sección España, IEEE Systems, Man and Cybernetics –Capítulo Español, AEPIA, Ayuntamiento de Salamanca, University of Salamanca, World Federation of Soft Computing, MIR Labs, IT4Innovation Centre of Excellence, The International Federation for Computational Logic, Ministerio de Economía y Competitividad (TIN 2010-21272-C02-01), Junta de Castilla y León (SA405A12-2), INMOTIA, REPLENTIA, and HIDROGENA, who jointly contributed in an active and constructive manner to the success of this initiative.

We would like to thank Alfred Hofmann and Anna Kramer from Springer for their help and collaboration during this demanding publication project.

September 2013

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