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# Advances in Brain Inspired Cognitive Systems

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# Preface

BICS 2012—the 5th International Conference on Brain-Inspired Cognitive Systems—was held in Shenyang, China, as a sequel of BICS 2004 (Stirling, Scotland, UK), BICS 2006 (Lesvos, Greece), BICS 2008 (Sao Luis, Brazil), and BICS 2010 (Madrid, Spain). BICS has now become a well-established conference series on brain-inspired cognitive systems around the world, with growing popularity and increasing quality. As the biggest city in northeastern China, Shenyang is now an important political, industrial, and cultural center, and serves as the transportation and commercial hub of northeastern China. All participants of BICS 2012 had a technically rewarding experience as well as memorable experiences in this great city.

This book constitutes the proceedings of BICS 2012. The conference aimed to provide a high-level international forum for scientists, engineers, and educators to present the state of the art of brain-inspired cognitive systems research and applications in diverse fields. The conference featured plenary lectures given by world-renowned scholars, regular sessions with broad coverage, and some special sessions focusing on popular and timely topics.

The conference received a total of 116 submissions from more than 200 authors in 19 countries and regions across four continents. Based on rigorous reviews by the Program Committee members and reviewers, 46 high-quality papers were selected for publication in the conference proceedings. We would like to express our sincere gratitude to all reviewers of BICS 2012 for the time and effort they generously gave to the conference. We are very grateful to the Institute of Automation of the Chinese Academy of Sciences, the University of Stirling, the Chinese University of Hong Kong, the University of Illinois at Chicago, and the National Natural Science Foundation of China for their financial support. We would also like to thank the publisher, Springer, for cooperation in publishing the proceedings in the prestigious series of *Lecture Notes in Artificial Intelligence*.

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