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# Information Computing and Applications

Third International Conference, ICICA 2012  
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Proceedings



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# Preface

Welcome to the proceedings of the 3rd International Conference on Information Computing and Applications (ICICA 2012), which was held during September 14–16, 2012, in Mountain Resort, Chengde, China.

As information technology advances, information computing and applications are becoming increasingly specialized. Information computing and applications including hardware, software, communications, and networks are growing with ever increasing scale and heterogeneity, and becoming overly complex. The complexity is getting more critical along with the growing number of applications. To cope with this complexity, information computing and applications focus on intelligent, selfmanageable, scalable computing systems and applications to the maximum extent possible without human intervention or guidance.

With the rapid development of information science and technology, information computing has become the third approach of science research. Information computing and applications is the field of study concerned with constructing intelligent computing, mathematical models, numerical solution techniques, and using computers to analyze and solve natural scientific, social scientific, and engineering problems. In practical use, it is typically the application of computer simulation, intelligent computing, internet computing, pervasive computing, scalable computing, trusted computing, autonomy-oriented computing, evolutionary computing, mobile computing, applications, and other forms of computation to problems in various scientific disciplines and engineering. Information computing and applications is an important underpinning for techniques used in information and computational science and there are many unresolved problems that are worth studying.

The ICICA 2012 conference provided a forum for engineers and scientists from academia, industry, and government to address the most innovative research and development including technical challenges and social, legal, political, and economic issues, and to present and discuss their ideas, results, work in progress, and experience on all aspects of information computing and applications.

There was a very large number of paper submissions (1089). All submissions were reviewed by at least three Program or Technical Committee members or external reviewers. It was extremely difficult to select the presentations for the conference because there were so many excellent and interesting submissions. In order to allocate as many papers as possible and keep the high quality of the conference, we finally decided to accept 330 papers for presentation, reflecting a 30.3% acceptance rate. A total of 100 papers were included in this volume. We believe that all of these papers and topics not only provided novel ideas, new results, work in progress, and state-of-the-art techniques in this field, but will also stimulate future research activities in the area of information computing and applications.

The exciting program for this conference was the result of the hard and excellent work of many others, such as Program and Technical Committee members, external reviewers, and Publication Chairs under a very tight schedule. We are also grateful to the members of the Local Organizing Committee for supporting us in handling so many organizational tasks, and to the keynote speakers for accepting to come to the conference with enthusiasm. Last but not least, we hope you enjoyed the conference program, and the beautiful attractions of Chengde, China.

September 2012

Yanchun Zhang  
Baoliang Liu  
Chunfeng Liu

# Organization

ICICA 2012 was organized by Hebei United University, Hebei Scene Statistical Society, and sponsored by the National Science Foundation of China, Hunan Institute of Engineering, Yanshan University, Northeastern University at Qinhuangdao, and Chengde Petroleum College.

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