Preface
Message from General and Program Chairs

Welcome to The First International Multi-Symposiums in Computer and Computational Sciences 2006 (IMSCCS|06), June 20-24, Hangzhou, China. IMSCCS|06 is an international event organized by IMSCCS conference organizers and IEEE CS. This conference is dedicated to celebrate the 60th anniversary of IEEE Computer Society. The conference has received generous supports from IEEE CS Press, IEEE local chapter in China, USA Science, Technology, Engineering, and Mathematics Education Society (STEMES), The University of Iowa, Zhejing University, and Harbin Engineering University.

IMSCCS|06 is an international conference, composed of multiple symposiums on computer and computational sciences. Each symposium focuses on a specific topic in one of the domains of computer science and computational sciences. The conference brings together the communities of research, developers, and practitioners, and users to become involved with computer and computational sciences. The conference provides a great opportunity for IT and/or CS professionals from different scientific disciplines to share their research experiences and methodologies, discuss challenge problems, and to initiate collaborative projects. The ultimate goal is to foster the collaborations between professionals in computer science or IT domains with the ones in multi-disciplinarians in sciences and engineering fields. Such a conference will be held annually on a selected campus around the world. IMSCCS|06 is the first conference held in Hangzhou City, one of the most beautiful cities in China.

The conference organizers successfully solicited the following topics which have been cataloged into two major domains: computer science and computational sciences. One focuses on fundamental research and development in computer science, while the other one focuses on computations and applications in other scientific and engineering areas.

**Computer Science:**
HPC Technology and Applications  
Networks and Network Security  
Distributed Systems and Data Communication  
Software Development  
Formal Methods and Programming Languages  
Algorithms and Complexity Theory  
CS and IT Education, Learning, and Teaching  
Operating Systems  
Databases and Data Management System  
Computer Graphics, Computer Vision, Virtual Reality  
Computer System, Structure, and Architecture  
System Engineering  
Artificial Intelligence

**Computational Science:**
Parallel Algorithms and Applications  
Large-scale Computations and Simulations  
Software Development in Computations  
Large-scale Linear Algebra Equation Solver  
Numerical Method and Analysis  
Computations in Nanotechnology  
Computational Chemistry  
Data and Signal Processing  
Image Processing  
Geo-science and Geographic Information System  
Remote Sensors and Networking  
Computations in Bioinformatics and Computational Biology  
Computations in Statistics  
Modeling, Simulation, Visualization, Virtual Reality
Automated Reasoning             Computations in Biomedical and Biomechanical Engineering

It is a sign of high levels of interest and activity that most of the paper contributed expressed their interest in attend this conference for gain more collaboration chances and multidisciplinary materials. The contributions to the conference from researchers and developers from 10 countries or geographic regions including USA, Australia, Japan, Germany, Singapore, China, Hong Kong, Taiwan, Canada, Korea. The papers are contributed from 120 universities, institutions, and organizations. There are more than 900 authors or co-authors involved.

The response to the conference’s call for paper has been excellent and we expect the attendance at the actual conference to be equally impressive. The conference has received 628 papers and each paper has been peer-reviewed by two or three members of the program committee or special invited reviewers. Each program committee member and reviewer only reviewed 5-10 papers in order to ensure the review quality. Due to this large load, we have ensured that each paper has received a minimum of 2 reviewers before making a final decision. Some papers with conflicting reviews have been reexamined. The papers found to be submitted or accepted by the other conferences were rejected or recommend the authors withdrew. In consultation with members of the program and steering committees, we finally decided to accept 17 symposiums listed below. The symposiums contain 274 accepted and promising papers (among them 74 % are regular papers and 26% are short papers).

The IMSCCS|06 has one keynote speech, referred regular papers for oral presentation, and referred short papers for poster presentation. Both regular and short papers are included in this proceeding.

Acknowledgements

We would like to thank all authors for submitting their research papers for consideration. The success of the conference is fully due to the hard work of the program committee members and external reviewers. We sincerely thank them for donating their precious time and efforts for review papers and offering their expert comments.

We owe a debt of gratitude to all our contributors and sponsors. In particular, we thank Ms. Zhenge Huang for her handling many administrative tasks required for organizing and co-locating the conference at Zhejiang University. We thank Jessica Hua who helped us manage budgets, integrate finances, and handle the registration of the main conference. We thank Joe DeMaria for his persistent help and support in the preparation of the daily-based operations of the conference.

We thank Mr. Thomas Baldwin and Tim Fink, the managers of IEEE Computer Society Press, USA, who enthusiastically support our conference. Thanks also go to Ms. Silvia Ceballos for her wonderful editorial service to this proceeding.

May 10, 2006

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