2006 IMACS Multiconference on Computational Engineering in Systems Applications

(CESA' 2006)

Fuchun Sun and Huaping Liu (Eds)

Beijing, P. R. China

Oct. 4-6, 2006

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Message from the General Co-Chair

The Multiconference on "Computational Engineering in Systems Applications" (CESA2006), co-sponsored by IMACS (the International Association for Mathematics and Computers in Simulation) and IEEE/SMC Society, will be held in Beijing on 4-6 October 2006. Its aim is to bring together scholars and practitioners from academia and industries to exchange the latest development in theories, and applications of computational techniques.

Over the last decades, it has become a strong need for exchange on common computational and algorithmic tools between researchers working in different application backgrounds. Under this situation, the first CESA conference (CESA96) was successfully held in Lille, France in July 1996. 657 papers from 40 countries were presented in this conference. The following two conferences CESA98 and CESA2003 were held in Nabeul-Hammamet, Tunisia in April 1998 and in Lille in July 2003 respectively. CESA98 collected 583 papers from 37 countries and while CESA2003 gathered 452 papers from 33 countries.

As the main organizer of CESA conferences, Ecole Centrale de Lille initiated and conducted most of scientific and social organization activities. However, we always have a strong wish to share our experience in CESA organization with research partners in the other parts of the world. In fact, more and more foreign partners, including Tunisian and Chinese researchers, have been involved in the organization of CESA conferences.

I should point out that many well-known scientists who play important roles in IEEE Society or IMACS have been actively involved in the CESA conferences. Special thanks go to Prof.L. Hall (USA), the current chairman of IEEE/SMC Society, J.Tien (USA), T.Fukuda (Japan), R.Saeks (USA) and M.Smith (Canada). In the previous CESA conferences, they gave many valuable suggestions. They are also involved in the activities of CESA2006 as steering committee members or symposium chairs or plenary speakers.

Since twenty years ago, as what happened in economic and social fields, great progress has also been made in China in scientific research and Chinese researchers have been more and more engaged in international research cooperation activities. It is the main reason for that the steering committee of CESA2006 decided to organize CESA2006 in Beijing with Tsinghua University. As initiator of CESA conferences, I would like to thank Tsinghua University to have accepted to co-organize this conference with the other two French research institutions. Special thanks go to Prof. Bo Zhang, Prof. Shiqiang Yang and Prof.

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Fuchun Sun for their efforts and excellent organization work for the success of this conference. I also thank my French colleagues in Ecole Centrale de Lille and ENSAIT for their contribution in scientific organization and coordination work.

I am pleased to see that there is a strong participation of Chinese authors and also a great number of overseas authors attend this conference. I wish all of them enjoy the activities of CESA2006, make friends and have fruitful communications and exchanges between them.

Pierre Borne
General Co-Chair
Ecole Centrale de Lille – France

Message from the General Co-Chair

Welcome to the 2006 IMACS Multiconference on Computational Engineering in Systems Applications and welcome to Beijing, the capital of China.

The conference is a symposium series that had traditionally been held only in Europe over the years. We are especially proud of and excited about this year's conference. Not only is the conference being held outside of Europe for the first time in its history but it is also being hosted jointly with the first International Workshop on Intelligent Systems and Intelligent Computing. The two conferences provide an international forum for a distinguished group of experts to discuss and share their new ideas, research results, practical development and the challenges facing them. With an emphasis on systems and applications, the presentations and discussions cover various theoretical and practical aspects of computational engineering involved in system theory and its applications.

Most importantly, we would like to extend our utmost thanks to many superb individuals and various organizations. In particular, we would like to acknowledge NSFC, IEEE/SMC Society, Tsinghua University, Ecole Centrale de Lille and Ecole Nationale Superieure des Arts et Industries Textiles for their support. We are also very grateful to all authors and conference attendees for their contribution and participation.

Lastly, we hope you enjoy the conferences and your experience in Beijing!

Bo Zhang
General Co-Chair
Professor
Tsinghua University-China

Message from CESA2006 Organizers

As international program chairs and organizing committee chairs, we are pleased to welcome all the participants of the IMACS Multiconference on "Computational Engineering in Systems Applications" (CESA2006). It is the first time that a CESA conference is held in China after the success of CESA96 and CESA2003 in Lille (France) and CESA98 in Nabeul-Hammamet (Tunisia). CESA2006 is jointly sponsored by Tsinghua University, Ecole Centrale de Lille and Ecole Nationale Supérieure des Arts et Industries Textiles, in cooperation with IEEE/SMC Society.

The aim of this important meeting is to make the state of the art of the various theoretical and practical aspects of computational engineering involved in system theory and its applications. 388 papers will be presented in this multiconfénce, which include five symposiums and one workshop as follows.

1) Symposium on Mathematical Modelling, Identification and Simulation (87 papers)
2) Symposium on Cybernetics and Computational Intelligence (29 papers)
3) Symposium on Aeronautics and Astronautics Automation (44 papers)
4) Symposium on Industrial Engineering and Complex Systems (121 papers)
5) Symposium on Communication and Electronic Systems (26 papers)
6) Workshop on Intelligent Systems and Intelligent Computing (IWISIC) (81 papers)

These papers will be presented in 75 technical sessions, including 35 invited sessions and 40 regular sessions. About 10%-15% of papers presented at CESA2006 will be selected and further extended for publication in a number of international journals with SCI citation.

As the previous CESA conferences, CESA2006 is particularly oriented to industrial applications in which the following problems have been studied: logistics, production management and supply chain, industrial modeling, simulation and control, industrial design, industrial security, coding and transmission, industrial fault diagnosis and inspection, robotics, and so on. The related industrial fields include manufacturing, transportation, aeronautics, electronics, textile, medicine, economics, instrumentation, energy, automobile, chemistry, and so on. These industrial problems have been solved using the following computing techniques: signal processing, intelligent techniques, data fusion and data analysis, image processing and pattern recognition, decision making, Petri net, hybrid systems, and so on. Apart from these application-oriented papers, CESA2006 also collects a number of presentations on different theoretical aspects such as advanced control theory, system stability, discrete event systems.

As organizers of CESA2006, we would like to express our special thanks to Tsinghua University, Ecole Centrale de Lille and Ecole Nationale Supérieure des Arts et Industries Textiles for their sponsorship to this multiconference. We highly appreciate the five plenary speakers for delivering plenary talks at this conference. We are greatly thankful to all the

authors for their excellent contributions, to all the invited session organizers for their effort and enthusiasm, and to all the international program committee members and referees for their time and expertise in the paper review process. Also, special thanks go to Huaping Liu, Fengge Wu, Nathalie Dangoumau, Hervé Camus for their time and outstanding work in the organization of CESA2006.

We wish all CESA2006 participants enjoy attending conference sessions and activities, meeting research partners, setting up new research collaborations and having pleasant stays in Beijing.

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