

Message from the Chairman of International Computer Congress 1999

Introduction

The International Computer Congress 1999 to be organized in Hong Kong from December 13-17, 1999, features four international conferences, namely The International Computer Science Conference (ICSC'99), The Sixth International Conference on Real-Time Computing Systems and Applications (RTCSA'99), The First International Conference on Mobile Data Access (MDA'99) and 1999 Pacific Rim International Symposium on Dependable Computing (PRDC 1999).

The International Computer Science Conference (ICSC) is the flagship conference of the IEEE Hong Kong Section Computer Chapter. ICSC'99 is the fifth in the series of conferences dedicated to the forefront of computer science. This is the 10th year of ICSC and every ICSC has a different theme which reflects the general interest of fields of computer science at the time. The ICSC'97 was a joint conference with APSEC'97 featuring advance topics on Software Engineering. For 1999, the theme is Internet Applications to celebrate the tremendous growth of the Internet.

RTCSA'99 will be the sixth in its series and the first time being held in Hong Kong. RTCSA had been held previously in Japan, Korea, and Taiwan. RTCSA'99 will bring together researchers and developers from academia and industry for advancing the technology of real-time computing systems and applications. The conference has the following goals: (1) to investigate advances in real-time systems and applications; (2) to promote interaction among real-time systems and applications; (3) to evaluate the maturity and directions of real-time system technology.

The First International Conference on Mobile Data Access is the successor of the Workshop on Mobile Data Access held in Singapore in November 1998. Recognizing the success of the Workshop and the importance of the area, the organizing team of the Workshop decided to transform it into an international conference to address the support of data access over hybrid wireless and wired networks. The scope of the conference includes but is not limited to information broadcast and filtering, data and location management, mobile networks, quality of service, and applications.

The Pacific Rim International Symposium on Dependable Computing (formerly The Pacific Rim International Symposium on Fault-Tolerant Systems) is a biennial symposium. This will be the sixth in the series of biennial symposia organized since 1989. The growing influence of computers and information technology in our lives calls into question several issues related to the dependability, safety and security of computing systems and software. The objective of this symposium is to disseminate the state-of-the-art research in dependable computing, with particular emphasis on systems and software.

The Computer Science Congress is structured to have ICSC'99 and RTCSA'99 running in parallel from December 13-15, 1999, MDA'99 will start on December 15 and run in parallel with PRDC 1999 from December 16-17, 1999.

Objectives and Benefits of Holding the Four Conferences in Hong Kong

The Hong Kong economy, and economies in the Asia-Pacific region in general are going through a painful recession and restructuring at the moment due to the widespread economic crisis. Leaders in the region are grappling with ways and means of coming to terms with the problems and leading these economies towards growth and success in the next millenium. The Chief Executive's Commission on Innovation and Technology, in its first report, has attempted to address these issues and made recommendations for the future direction of Hong Kong. In the words of Prof. Tien Chang-Lin, the chairman of the commission (paraphrased from The Hong Kong Industrialist, December 1998):

The commission envisages Hong Kong to be an innovation-led, technology-intensive economy in the 21st century, serving the region not only as a business and financial centre, but also as a leading city in the world for the development and use of information technology.

The Secretary for Information Technology and Broadcasting, The Hon. K. C. Kwong, outlines the government's IT strategy for Hong Kong (paraphrased from The Hong Kong Industrialist, December 1998) as:

A healthy local IT industry is essential to the development of content and innovative applications in Hong Kong.

Rapid advances in information technology is evident in how it impacts our daily lives, personified by the explosive growth of the Internet. The widespread penetration of IT into our daily lives, be it in banking, financial services, real estate, transportation, manufacturing, government, and high technology areas, is unfathomable. Hong Kong, being a technology-savvy city, has been at the forefront of adopting information technology in all aspects of its economy and daily life. While the introduction of IT bring with it immense benefits, special attention should be devoted to addressing the problems of dependability arising from this growing dependance on IT.

This brings us to the focus and significance of holding The International Computer Congress 1999 in Hong Kong. ICSC'99 with its primary focus on Internet applications focusses on an important and growth-oriented field. RTSCA'99, with its focus on real-time systems and their applications is very important for the local manufacturing and services industry. MDA'99 with its emphasis on the support of data access over hybrid wireless and wired networks. And PRDC 1999, with its focus on dependability issues, addresses an important area of potential problems due to the widespread application of computer and information

technology in our daily lives. The four conferences will enable researchers and industry participants from Hong Kong, China and all over the world, to share their common knowledge, expertise and ideas about various aspects of information technology.

Conference Plans

Each of the conferences featured in the International Computer Congress 1999 have formed very strong programme committees whose members are experienced and internationally recognized researchers in their fields of expertise. We are pleased that we have attracted many high quality research paper submissions which will benefit all participants including many professionals and academics both from Hong Kong, China and all over the world. These papers will provide state-of-the-art information on engineering and information technology for developing possible applications in the local industry.

In addition to accepting high quality research papers, the congress will also accept papers reflecting on industrial experience. There are special sessions for presenting such industry-oriented papers. This will provide a forum for the practitioners in industry to discuss their practical experience in applying engineering methodology and tools. This will also allow other researchers to learn from the first hand experience of the practitioners and to fuel their future research.

The conferences also feature keynote speeches by eminent and internationally renowned researchers in the appropriate fields. These speakers will provide their own vision of the future for their fields of expertise. This would greatly benefit both academics and industrial participants because the speeches will highlight new directions for future research and development.

Acknowledgement

We would like to thank all who submitted paper to the conferences of this congress. We would also like to thank all program committee members who have devoted their valuable time to review and select the papers, and all organization committee members of the ICC and the four conferences who have devoted their valuable time and effort in making this conference success. Furthermore, we would like to thank the advisors for their firm support and valuable advice.

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Message from the ICSC General Chairman

The ICSC is the conference organized by the IEEE HK Section, Computer Chapter. This year's conference is not only the 5th conference, but also the last one before the Millenium. It therefore gives me great pleasure to welcome you all to Hong Kong, one of the 50 cities you have to visit at least once in your life. The theme - internet application - is at the right time, when the entire world is more closely linked by the Internet. I hope you will enjoy your stay in Hong Kong and look forward to seeing to in future conference. Finally, I would like to thank the member of the Organizing Committee for their hard work, and Mr Ricky Tang for his help in compiling this proceeding.

November 1999

Kwok-Ping Chan

Organizing Committee of International Computer Science Conference 1999

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Message from the ICSC Program Committee Chairman

ICSC '99 is the fifth of a series of conferences organized by the IEEE Hong Kong Section, Computer Chapter. Each ICSC conference has a theme. This time, the theme "Internet Application" is selected.

The tremendous growth of the Internet in the past decade has begun to impact us in almost every aspect we can imagine. We depend more and more on the Internet to communicate with each other (and even feel more comfortable about it than, say, telephones). Our education and economy are dependent more and more on the Internet – witness the boom of Internet-based retail and auction companies and the increasing use of web-based distance learning. With the penetration of the Internet in Asia, ICSC 99 is a timely event for researchers and industrialists to get together and to share with each other problems, solutions and new ideas.

What is special about ICSC 99 is that it is being held as part of the Federated 1999 International Computer Congress (ICC 99), a week-long event consisting four conferences: The Fifth International Computer Science Conference (ICSC 99), The Sixth International Conference on Real-Time Computing Systems and Applications (RTCSA'99), the Pacific Rim International Symposium on Dependable Computing (PRDC'99), and the First International Conference on Mobile Data Access (MDA 99). While each conference maintains its own focus, I hope delegates to ICSC 99 will participate in and take advantage of the other conferences, and vice versa.

For ICSC 99, we received 80 papers and accepted 30 regular papers and 30 short papers. We aimed at balancing the technical quality and diversity, so that conference participants can interact with each other in a wide range of areas. As can be seen from the technical program, the papers cover a large number of topics relating to Internet. And perhaps it is equally important that authors of these papers come from many countries. I hope delegates to the conference will interact not only in the technical sessions but in coffee breaks, lunches (arranged by the conference) and the conference banquet as well.

This year, several paper sessions are reserved for the AEARU Second Workshop of Computer Science. AEARU is an association of 17 major research universities in East Asia. Delegates from the member universities will join ICSC 99 and discuss their research and curriculum development activities.

Last but not least, I would like to take this opportunities to thank the excellent work of the Program Committee and external reviewers in putting the technical program together.

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Internet Applications

5th International Computer Science Conference,
ICSC'99, Hong Kong, China, December 13-15, 1999

Proceedings

Hui, L.C.-K.; Lee, D.L. (Eds.)

1999, XX, 528 p., Softcover

ISBN: 978-3-540-66903-6