

# THE 8th INTERNATIONAL CONFERENCE on ADVANCED COMMUNICATION TECHNOLOGY

Toward the Era of Ubiquitous Networks and Societies



Phoenix Park, Korea  
Feb. 20–22, 2006

Host



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PROCEEDINGS  
Volume III

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## **Host**

Ministry of Information and Communication(MIC)

## **Organizers**

National Computerization Agency(NCA)

Electronics and Telecommunications Research Institute(ETRI)

## **Sponsors**

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IEEE Region 10 and IEEE Daejeon Section

Open Standards and Internet Association(OSIA)

Korean Institute of Communication Sciences(KICS)

IEEE Communications Society(IEEE ComSoc)





Message from the ICACt2006 General and Organizing Chairs

On behalf of the ICACt2006 Organization and Operation Committee, I extend our warm welcome to the professionals in the field of communications from all over the world present at this grand meeting, namely International Conference on Advanced Communication Technology 2006. The ICACt2006, the 8th of the series conference, is a series of international academic event in the communications field, which all the experts from home and abroad gather to present their work, and share new ideas and visions for achieving the future telecommunication age. I hope that you will enjoy both the excellent technical content and recreational parts of the meeting.



The communication network is in a transition toward the era of ubiquitous networks and services received increasing attention over the last two or three years. No one can deny that technology has already permeated diverse aspects of human life. Mobile phones and the Internet -- the biggest success stories our industry has ever seen -- are only the beginning. The Ubiquitous Networks and Services will make it possible to connect anytime, anywhere, by anything and anyone. In a ubiquitous network, everyone and everything can be connected, and new innovations that will completely change the current dimension of IT technology are expected. ICACt2006 will provide the present and future of the ubiquitous networks and services. It will also give the basic characteristics, applications, issues and standardization of the ubiquitous networks and services.

In closing, I would like to express my sincere appreciation for the committee members and the referees for their contributions who have been helping us to prepare the event. I also sincerely thank all the authors for the papers on their precious technical achievements. I have no doubt of successful ICACt2006, and you will enjoy both the high technical talks of the sessions and the beautiful landscapes of Phoenix Park.

Have a pleasant stay in Phoenix Park.

IEEE ICACt2006  
Professor Minhø Kang, General Chairman  
Dr. Thomas Byeong-Nam Yoon, Organizing Chairman



## MESSAGE

### Message from the Technical Program Committee Chair

I would like to welcome to ICACT2006! It is a great pleasure to host this 8th ICACT2006 in Korea which is one of the countries recently drawing much attention in the world arena of high speed Internet.

ICACT is an IEEE-sponsored annual conference providing an open forum for researchers, engineers, policy makers, network planners, and service providers in telecommunications. Extensive exchange of information will be provided on newly emerging systems, standards, regulations, services, and variety of applications in the area of telecommunications.



Korea has richly benefited from deploying the high-speed Internet and Cellular networks providing various IT services all over the country. Approximately 80%, i.e. 13 millions, of Korean households use the high-speed Internet services, and 79%, i.e. 38 millions, of Korean people use the CDMA mobile phones now.

In Korea, with a goal to develop a new virtuous cycle, the Ministry of Information and Communication drew up the IT839 Strategy, which includes 8 Services, 3 Infrastructures, and 9 New Growth Engines.

8 Services are WiBro, DMB, Home Network, Telematics, RFID, W-CDMA, Terrestrial DTV, and VoIP. 3 Infrastructures are Broadband convergence Network(BcN), Ubiquitous Sensor Network(USN), and IPv6. 9 New Growth Engines are Next-Generation Mobile Communications Devices, Digital TV/Broadcasting Devices, Home Network Devices, IT System-on-Chip(SoC), Next-Generation PC, Embedded Software, Digital Contents(DC) and Software Solutions, Telematics Devices, and Intelligent Service Robot.

In this way, 8 new services will prompt investment into 3 essential networks. And these networks will be the highways for 9 new sectors to grow fast, creating synergetic effects.

The theme of ICACT2006 is "Toward the Era of Ubiquitous Networks and Societies." ICACT 2006 consists of 77 technical sessions including 2 poster sessions and an invited session with two remarkable world experts. The TPC carefully selected a limited number of 442 papers from 27 countries to be presented in the technical sessions. We hope these technical sessions will help you obtain better insights into the latest trends and directions for the increasingly competitive future communications and Internet markets. I am sure there will be an abundance of intelligent debate and information exchange, a look at what is new in the field and technology, and lots there.

Thank you everyone who has contributed to the technical program - the authors, the reviewers, and the technical program committee members for their terrific work in collecting and editing the papers. On behalf of the Technical Program Committee, I wish you a productive and enjoyable conference.

Dr. Hyeong-Ho Lee  
ICACT2006 Technical Program Committee Chairman

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