For further volumes:
http://www.springer.com/series/7818
Information Technology Convergence, Secure and Trust Computing, and Data Management

ITCS 2012 & STA 2012

Springer
On behalf of the organizing committees, it is our pleasure to welcome you to the 4th International Conference on Information Technology Convergence and Services (ITCS 2012), will be held in Gwangju, Korea on September 6–8, 2012.

In past decades or so, IT (Information Technology) influenced and changed every aspect of our lives and our cultures. Without various IT-based applications, we would find it difficult to keep information stored securely, to process information efficiently, and to communicate information conveniently. In the future world, IT will play a very important role in convergence of computing, communication, and all other computational sciences and application and IT also will influence the future world’s various areas, including science, engineering, industry, business, law, politics, culture, medicine, and so on.

Our conference is intended to foster the dissemination of state-of-the-art research in all IT convergence areas, including its models, services, and novel applications associated with their utilization. We hope our conference will be the most comprehensive conference focused on the various aspects of advances in all future IT areas and IT-based service, sciences and engineering areas.

We would like to thank all authors of this conference for their paper contributions and presentations. And we would like to sincerely appreciate the following prestigious invited speakers who kindly accepted our invitations, and helped to meet the objectives of the conference:

- Yang Xiao, Ph.D
  Professor, The University of Alabama, USA

- Juan Carlos Augusto, Ph.D
  Professor, University of Ulster, UK

- Ned Kock, Ph.D
  Professor, Texas A&M International University, USA

- Leonard Barolli, Ph.D
  Professor, Department of Information and Communication Engineering, Faculty of Information Engineering, Fukuoka Institute of Technology (FIT), Japan

- Fatos Xhafa, Ph.D
  Professor, Technical University of Catalonia (BarcelonaTech), Spain
We are sure you will find many exciting and stimulating presentations in our oral sessions and want to thank Steering Chair, Jong Hyuk Park for making this conference a success and Program Chairs, Yang Sun Lee, Feng zhao, Der-Jiunn Deng, Eric Pardede for collecting an extremely strong set of papers across a wide range of topics.

Finally, we want to extend our thanks to all Chairs and Committees who are truly responsible for making the conference a success through their generous contributions.

Hai Jin
Siao-Hwa Chen
Habib F. Rashvand
Andrew Kusiak
ITCS 2012 General Chairs
A warm welcome to the 4th International Conference on Information Technology Convergence and Services (ITCS 2012), will be held in Gwangju, Korea on September 6–8, 2012.

Our conference provides a chance for academic and industry professionals to discuss the latest issues and progress in the area of new convergence technologies, novel applications and services, associated with the devices and systems based on the various information technologies.

We would like to express our appreciation to all the contributors and authors for the 41 submissions with the following topics to ITCS 2012 which we received from around the globe.

- Track 1. Advanced Computer Science and Applications
- Track 2. Advanced Electrical and Electronics Engineering and Technology
- Track 3. Intelligent Manufacturing Technology and Services
- Track 4. Advanced Management Information Systems and Services
- Track 5. Electronic Commerce, Business and Management
- Track 6. Intelligent Vehicular Systems and Communications
- Track 7. Bio-inspired Computing and Applications
- Track 8. Advanced IT Bio/Medical Engineering
- Track 9. Modeling and Services for Intelligent Building, Town, and City

And some papers were invited from Chairs and Committee members to be included in our ITCS 2012 proceedings.

Achieving such a high quality of proceedings would have been impossible without the huge work that was undertaken by the international Program Committee members.

We take the opportunity to thank them for their great support and cooperation.

Sincerely yours,

Yang Sun Lee
Feng Zhao
Der-Jiunn Deng
Eric Pardede
ITCS 2012 Program Chairs
ITCS 2012 Organization

**Steering Chair**
James J.(Jong Hyuk) Park  Seoul National University of Technology, Korea

**General Chairs**
Hai Jin  Huazhong University of Science and Technology, China
Siao-Hwa Chen  National Cheng Kung University, Taiwan
Habib F. Rashvand  University of Warwick, UK
Andrew Kusiak  The University of Iowa, USA

**Program Chairs**
Feng Zhao  Huazhong Univ. of Science and Technology, China
Yang Sun Lee  Mokwon University, Korea
Der-Jiunn Deng  National Changhua University of Education, Taiwan
Eric Pardede  La Trobe University, Australia

**Workshop/Special Session Chair**
Jinjun Chen  Swinburne University of Technology, Australia

**International Advisory Board Committee**
Young-Sik Jeong  Wonkwang University, Korea

**Local Arrangement Chair**
Seungmin Rho  Baekseok University, Korea
Publicity Chairs

Laura Rusu
La Trobe University, Australia
Nicolas Sklavos
Technological Educational Institute of Patras, Greece
Min-Woo Cheon
Dongshin University, Korea

Finance & Registration Chair

Changhoon Lee
Seoul National University of Technology, Korea

Program Committee

Chin-Chen Chang
Chia University, Taiwan
Maumita Bhattacharya
Charles Sturt University, Australia
Michael Schwarz
Universitat Kassel, Germany
Mohammad Reza Keyvanpour
Alzahra University, Iran
Russel Pears
AUT University, New Zealand
Sanja Maravic Cisar
College of Subotica, Serbia
Viktoria Villanyi
Florida Atlantic University, USA
Yih-Chuan Lin
National Formosa University, Taiwan
Yuan-Ko Huang
Kao Yuan University, Taiwan
Zheng
Edinburgh University, UK
Zsolt Csaba Johanyák
Kecskemét College, Hungary
Eva Cheng
RMIT University, Australia
Somkait Udomhunsakul
Rajamangala University of Technology Suvarnabhumi

Gunter Saake
University of Magdeburg, Germany
Yao Chung Chang
National Taitung University, Taiwan
Bill Grosky
University of Michigan-Dearborn, USA
Marco Furini
University of Bologna, Italy
Mudasser Wyne
National University, USA
Zhaobin Liu
Dalian Maritime University, China
Geguang Pu
East China Normal University, China
Gritzalis Stefanos
University of the Aegean, Greece
Raymond Choo
Australian Institute of Criminology, Australia
Somchart Fugkeaw
Thaidigitalid, Thailand
Chao-Tung Yang
Tunghai University, Taiwan
Fazle Hadi
King Saud University, Saudi Arabia
Hanáček Petr
Brno University of Technology, Czech Republic
Yuliya Ponomarchuk
Kyungpook National University, Korea
Albert Zomaya
The University of Sydney, Australia
Debnath Bhattacharyya  
KIIT University, India

Lavi Ferariu  
Technical University of Iasi, Romania

Rahim A. Abbaspour  
University of Tehran, Iran

Satoshi Kurihara  
Osaka University, Japan

Ovidiu Ghiba  
Politehnica University of Timisoara, Romania

Pereira Rubem  
Liverpool John Moores University, UK

Robert Meurant  
The Institute of Traditional Studies, USA

Naresh Agarwal  
Simmons College, Boston, MA, USA

Dennis Adams  
University of Houston, USA

Min-Woo Cheon  
Dongshin University, Korea

Yiming Li  
National Chiao Tung University, Taiwan

Zeadally Sherali  
Wayne State University, USA

Bouktir Tarek  
University of Oum El Bouaghi, Algeria

Rajmonda Bualoti  
Polytechnic University of Tirana, Albania

Gheorghe-Daniel Andreescu  
Politehnica University of Timisoara, Romania

Chuanwen Jiang  
Shanghai Jiaotong University, China

Yejun He  
Shenzhen University, China

Bo Liu  
Shanghai Jiaotong University, China

Chengnian Long  
Shanghai Jiaotong University, China

Maode Ma  
Nanyang Technological University, Singapore

Liang Zhou  
Shanghai Jiao Tong University, China

Xu Zhu  
University of Liverpool, UK

Liu Fuqiang  
Tongji University, China

Ka-Cheong Leung  
University of Hong Kong, China

Li-Der Chou  
National Central University, Taiwan

Gozalvez Sempere  
Javier Manuel University Miguel Hernandez, Spain

Jose Ignacio Herrero Zarzosa  
GMV, Spain

Slawomir Kuklinsky  
Warsaw University of Technology, Poland

Tzung-Shi Chen  
National University of Tainan, Taiwan

Haikal Al Abed  
Braunschweig Technical University, Germany

Mosa Ali Abu-Rgheff  
University of Plymouth, UK

Selma Boumerdassi  
CNAM, France

Jiann-Liang Chen  
National Taiwan University of Science and Technology, Taiwan

Jaafar Elmirghani  
University of Leeds, UK

Carlos Juiz  
Universitat de les Illes Balears, Spain

George A. Gravvanis  
Democritus University of Thrace, Greece

Janusz Kacprzyk  
Polish Academy of Sciences, Poland

Javier Ortega-Garcia  
Universidad Autonoma de Madrid, Spain

Jongwook Woo  
California State University, USA

Jos Molina  
University Carlos III of Madrid, Spain

Kayvan Najarian  
VCU, USA

Kenji Mizuguchi  
National Institute of Biomedical Innovation, Japan

Kevin Daimi  
University of Detroit Mercy, USA
<table>
<thead>
<tr>
<th>Name</th>
<th>Affiliation</th>
</tr>
</thead>
<tbody>
<tr>
<td>QingZhong Liu</td>
<td>Sam Houston State University, USA</td>
</tr>
<tr>
<td>Rattikorn Hewett</td>
<td>Texas Tech University, USA</td>
</tr>
<tr>
<td>Wei Zhong</td>
<td>University of South Carolina, USA</td>
</tr>
<tr>
<td>Martin Drahansky</td>
<td>Brno University of Technology, Czech Republic</td>
</tr>
<tr>
<td>Mieczyslaw Muraszkiewicz</td>
<td>Warsaw University of Technology, Poland</td>
</tr>
<tr>
<td>Zongqing Zhou</td>
<td>Niagara University, USA</td>
</tr>
<tr>
<td>Daniel Zhu</td>
<td>Iowa State University, USA</td>
</tr>
<tr>
<td>Wojciech Cellary</td>
<td>Poznan University of Economics, Poland</td>
</tr>
<tr>
<td>Paul Grefen</td>
<td>Eindhoven University of Technology, The Netherlands</td>
</tr>
<tr>
<td>Haiquan (Victor) Chen</td>
<td>Valdosta State University, USA</td>
</tr>
<tr>
<td>Kenji Mizuguchi</td>
<td>National Institute of Biomedical Innova, Japan</td>
</tr>
<tr>
<td>Jose Alfredo F. Costa</td>
<td>Federal University, UFRN, Brazil</td>
</tr>
</tbody>
</table>
Message from the STA 2012 General Chairs

We are pleased to welcome you to the 9th FTRA International Conference on Secure and Trust Computing, data management, and Applications (STA 2012), held in Gwangju, Korea, September 6–8, 2012.

STA 2012 addresses the various theories and practical applications of secure and trust computing and data management in future environments. It will present important results of significant value to solve the application services and various problems within the scope of STA 2012. In addition, we expect it will trigger further related research and technology developments which will improve our lives in the future.

We sincerely thank the STA 2012 steering chair, James J.(Jong Hyuk) Park. It would have been impossible to organize our program without the hard work of all our chairs and committees. Finally, we would like to thank the FSTA 2012 and IS 2012 workshop chairs for contributions that have added variety to the topics represented.

Hai Jin
Yanchun Zhang
Bo Jin
STA 2012 General Chairs
On behalf of the STA 2012 organizing committee, it is our honor to welcome you to the 9th FTRA International Conference on Secure and Trust Computing, data management, and Applications (STA 2012).

The success of a conference is mainly determined by the quality of its technical program. This year’s program will live up to high expectations due to the careful selection by the Program Committee. They have spent long hours in putting together an excellent program and deserve a big applause.

There are many people who contributed to the success of STA 2012. We would like to thank the many authors from around the world for submitting their papers. We are deeply grateful to the Program Committee for their hard work and enthusiasm that each paper received a thorough and fair review. Finally, we would like to thank all the participants for their contribution to the conference.

Deqing Zou
Jongsung Kim
Jun Hong
STA 2012 Program Chairs
STA 2012 Organization

Steering Chair
James J. (Jong Hyuk) Park Seoul National University of Science and Technology, Korea

General Chairs
Hai Jin Huazhong University of Science and Technology, China
Yanchun Zhang Victoria University, Australia
Bo Jin The 3rd Research Institute of Ministry of Public Security, China

Program Chairs
Deqing Zou Huazhong University of Science and Technology, China
Jongsung Kim Kyungnam University, Korea
Jun Hong Queen’s University Belfast, UK

Program Vice Chair
Huafeng Kong The 3rd Research Institute of Ministry of Public Security, China

Workshop Chairs
Chung-Huang Yang National Kaohsiung Normal University, Taiwan
Weizhong Qiang Huazhong Univ. of Science and Technology, China
Muhammad Khurram Khan King Saud University, Kingdom of Saudi Arabia
Alfredo Cuzzocrea ICAR-CNR & University of Calabria, Italy
International Advisory Board

Gail-Joon Ahn  Arizona State University, USA
Wanlei Zhou  Deakin University, Australia
Steganos Gritzalis  University of the Aegean, Greece
Hsiao-Hwa Chen  National Sun Yat-Sen University, Taiwan
Feng Bao  Institute for Infocomm Research(I2R), Singapore
Xiaobo Zhou  University of Colorado at Colorado Springs, USA
Tok Wang Ling  National University of Singapore, Singapore
Philip S. Yu  University of Illinois at Chicago, USA

Publicity Chairs

Ching-Hsien (Robert) Hsu  Chung Hua University, Taiwan
Wenbin Jiang  Huazhong Univ. of Science and Technology, China
Hung-Min Sun  National Tsing Hua University, Taiwan

International Liaison Chairs

Guojun Wang  Central South University, China
Bernady O. Apduhan  Kyushu Sangyo University, Japan
Muhammad Khurram Khan  King Saud University, Saudi Arabia

Web Management Chair

Xiaodi Wang  Huazhong University of Science and Technology, China

Technical Program Committee

Roberto Caldelli  University of Florence, Italy
Vincent Rijmen  TU Graz KULeuven, Belgium
Jongsub Moon  Korea University, Korea
Ruth Breu  University of Innsbruck, Austria
Cliff Zou  University of Central Florida, USA
Xiaofeng Chen  Xidian University, China
Hyohyun Choi  Inha Technical College, Korea
Wei-Chuen Yau  Multimedia University, Malaysia
Soon M. Chung  Wright State University, USA
Zhuo Ma  Xidian University, China
Bo Zhao  Wuhan University, China
Lingyu Wang  George Mason University, USA
Hongmei Chi  Florida A&M University, USA
Dave Singelee  Research Group COSIC, Belgium
Weifeng Chen  California University of Pennsylvania, USA