The IFIP World Computer Congress 2010

The IFIP World Computer Congress 2010 is a world-class event for IT professionals, innovators, researchers and consumers who want to share, learn and experience with global experts and peers in beautiful Queensland, Australia.

What is the WCC?
Every two years the International Federation for Information Processing (IFIP) holds the World Computer Congress (WCC). In 2010 the 21st WCC will be held in Brisbane, Australia, hosted by the Australian Computer Society (ACS).

What is IFIP?
IFIP is an umbrella organisation for national societies working in the field of IT, since 1959. Established by the United Nations, IFIP has 58 member associations in 56 countries throughout the world, with over half a million members.

The congress
The WCC 2010 will be held at the Brisbane Convention & Exhibition Centre from 20th to 23rd September 2010. The congress attracts expert presenters and thousands of delegates from around the globe.

The content
The congress combines content from commercial, industry, association and research sectors offering an opportunity to showcase and discover innovative ideas.

The content will range from the latest international research to leading commercial and industry-focused insights and thought pieces, of interest to a wide audience.
Partner conferences

The WCC 2010 will partner with local, regional and international conferences, such as:
• The Victorian Information Technology Teachers Association (VITTA)
• The South East Asia Regional Computer Confederation (SEARCC).

The IFIP World Computer Congress is an opportunity for local conferences to leverage a global event for mutual benefit.

For more information on our partner conferences, please turn to page 9.

The program

The program will feature:
• innovative content, developed by the International Program Committee and partner conferences and discussion on globally significant topics
• internationally renowned keynote speakers, who will open each plenary session
• panel discussions and interactive debates led by experts, which follow each keynote speaker.

Call for papers

The WCC 2010 is calling for industry and research papers to be submitted for the congress. Refereed research papers will be published internationally via Springer (www.springer.com) and the Digital Library.

Presenters will join international keynote speakers and IT leaders in their fields. The WCC is an opportunity to publish and promote your innovations and experiences internationally.

In addition

As well as the conferences and content, delegates at the IFIP World Computer Congress 2010 will be able to attend the Expo, enjoy technical tours of local research and commercial technology innovators and attend industry leading training and certification courses.

The WCC in Brisbane will provide an unparalleled opportunity to network with international peers and experts.
IFIP conferences

The congress content will be unified under eight program streams. For example, IFIP Conferences for the World Computer Congress 2010 are aligned below.

<table>
<thead>
<tr>
<th>Program Stream</th>
<th>Topics</th>
</tr>
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<tbody>
<tr>
<td>Deliver IT</td>
<td>Explores the leading IT delivery strategies, methodologies and research.</td>
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<tr>
<td>Deliver IT</td>
<td>Wireless Communication and Information Technology in Developing Countries (WCITD 2010)</td>
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<tr>
<td>Deliver IT</td>
<td>Biologically Inspired Cooperative Computing (BICC 2010)</td>
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<tr>
<td>Deliver IT</td>
<td>Distributed and Parallel Embedded Systems (DIPES 2010)</td>
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<tr>
<td>Deliver IT</td>
<td>3rd IFIP International Conference on Artificial Intelligence in Theory and Practice (AI 2010)</td>
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<tr>
<td>Deliver IT</td>
<td>Network of the Future (NF)</td>
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<tr>
<td>Deliver IT</td>
<td>Enterprise Architecture, Integration, Interoperability and Networking (EAFN 2010)</td>
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<tr>
<td>Deliver IT</td>
<td>Human Choice and Computers Conference (HCC9 2010)</td>
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<tr>
<td>Deliver IT</td>
<td>Theoretical Computer Science (TCS 2010)</td>
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<tr>
<td>Deliver IT</td>
<td>Human Computer Interaction (HCI 2010)</td>
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<tr>
<td>Value IT</td>
<td>Offers ways to improve profitability through optimisation of value to clients, stakeholders and customers.</td>
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<tr>
<td>Learn IT</td>
<td>Aims to improve workforce skills by capitalising on leading IT education, e-learning, research and recruitment strategies.</td>
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<tr>
<td>Learn IT</td>
<td>Key Competencies in the Knowledge Society (KCKS 2010)</td>
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<tr>
<td>Learn IT</td>
<td>History of Computing (HC)</td>
</tr>
<tr>
<td>Learn IT</td>
<td>International Information Security Conference (SEC 2010)</td>
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<tr>
<td>Learn IT</td>
<td>Critical Infrastructure Protection (CIP)</td>
</tr>
<tr>
<td>Learn IT</td>
<td>Human Choice and Computers Conference (HCC9 2010)</td>
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<tr>
<td>Learn IT</td>
<td>Track 3: Surveillance and Privacy</td>
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<tr>
<td>Trust IT</td>
<td>Uncovers the latest information on IT security and threats.</td>
</tr>
<tr>
<td>Trust IT</td>
<td>Global Information Systems Processes (GISP)</td>
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<tr>
<td>Trust IT</td>
<td>E-Government and E-Services (EGES)</td>
</tr>
<tr>
<td>Trust IT</td>
<td>Human Choice and Computers Conference (HCC9 2010)</td>
</tr>
<tr>
<td>Trust IT</td>
<td>Track 1: Ethics and ICT Governance</td>
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<tr>
<td>Govern IT</td>
<td>Dedicated to leveraging developments in ICT governance, professionalism and e-government initiatives</td>
</tr>
<tr>
<td>Govern IT</td>
<td>E-Health (EHEALTH 2010)</td>
</tr>
<tr>
<td>Treat IT</td>
<td>Accelerates the global health IT transformation.</td>
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</table>
Each stream will include a number of leading IFIP scientific conferences. These will involve many international researchers and well known experts. A complete list of the IFIP conferences, program committees and call for papers can be found at the congress web site: www.wcc2010.com

The scientific content will investigate the latest thinking on themes such as:

- Solutions to delivering broadband services to rural communities - new, innovative technical research as well as the delivery of practical technical solutions
- Social shaping - the sociology of technology, science studies and other approaches of cultural studies to the phenomenon of the information society
- Information and Communication Technologies are perceived both as enablers of technological and societal change towards sustainable development and as drivers of increasing energy and materials consumption
- Post-IP architecture and Beyond IP
- How future EA/EI will play a key role in the development of enterprises and supporting ICT, the new methods and tools that are necessary and how these will support business decision making and provide technologies that help create and sustain new types of businesses
- ICT in relation to competencies in the knowledge society
- The reliable and secure operation of national and global information infrastructures that national economies and international commerce alike have become totally dependent upon.
Nicholas Reynolds
Márta Turcsányi-Szabó (Eds.)

Key Competencies in the Knowledge Society

IFIP TC 3 International Conference, KCKS 2010
Held as Part of WCC 2010
Brisbane, Australia, September 20-23, 2010
Proceedings

Springer
IFIP Advances in Information and Communication Technology

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IFIP – The International Federation for Information Processing

IFIP was founded in 1960 under the auspices of UNESCO, following the First World Computer Congress held in Paris the previous year. An umbrella organization for societies working in information processing, IFIP’s aim is two-fold: to support information processing within its member countries and to encourage technology transfer to developing nations. As its mission statement clearly states,

IFIP’s mission is to be the leading, truly international, apolitical organization which encourages and assists in the development, exploitation and application of information technology for the benefit of all people.

IFIP is a non-profitmaking organization, run almost solely by 2500 volunteers. It operates through a number of technical committees, which organize events and publications. IFIP’s events range from an international congress to local seminars, but the most important are:

- The IFIP World Computer Congress, held every second year;
- Open conferences;
- Working conferences.

The flagship event is the IFIP World Computer Congress, at which both invited and contributed papers are presented. Contributed papers are rigorously refereed and the rejection rate is high.

As with the Congress, participation in the open conferences is open to all and papers may be invited or submitted. Again, submitted papers are stringently refereed.

The working conferences are structured differently. They are usually run by a working group and attendance is small and by invitation only. Their purpose is to create an atmosphere conducive to innovation and development. Refereeing is less rigorous and papers are subjected to extensive group discussion.

Publications arising from IFIP events vary. The papers presented at the IFIP World Computer Congress and at open conferences are published as conference proceedings, while the results of the working conferences are often published as collections of selected and edited papers.

Any national society whose primary activity is in information may apply to become a full member of IFIP, although full membership is restricted to one society per country. Full members are entitled to vote at the annual General Assembly, National societies preferring a less committed involvement may apply for associate or corresponding membership. Associate members enjoy the same benefits as full members, but without voting rights. Corresponding members are not represented in IFIP bodies. Affiliated membership is open to non-national societies, and individual and honorary membership schemes are also offered.
IFIP World Computer Congress 2010  
(WCC 2010)

Message from the Chairs

Every two years, the International Federation for Information Processing (IFIP) hosts a major event which showcases the scientific endeavors of its over one hundred technical committees and working groups. On the occasion of IFIP’s 50th anniversary, 2010 saw the 21st IFIP World Computer Congress (WCC 2010) take place in Australia for the third time, at the Brisbane Convention and Exhibition Centre, Brisbane, Queensland, September 20–23, 2010.

The congress was hosted by the Australian Computer Society, ACS. It was run as a federation of co-located conferences offered by the different IFIP technical committees, working groups and special interest groups, under the coordination of the International Program Committee.

The event was larger than ever before, consisting of 17 parallel conferences, focusing on topics ranging from artificial intelligence to entertainment computing, human choice and computers, security, networks of the future and theoretical computer science. The conference History of Computing was a valuable contribution to IFIP’s 50th anniversary, as it specifically addressed IT developments during those years. The conference e-Health was organized jointly with the International Medical Informatics Association (IMIA), which evolved from IFIP Technical Committee TC-4 “Medical Informatics”.

Some of these were established conferences that run at regular intervals, e.g., annually, and some represented new, groundbreaking areas of computing. Each conference had a call for papers, an International Program Committee of experts and a thorough peer reviewing process of full papers. The congress received 642 papers for the 17 conferences, and selected 319 from those, representing an acceptance rate of 49.69% (averaged over all conferences). To support interoperation between events, conferences were grouped into 8 areas: Deliver IT, Govern IT, Learn IT, Play IT, Sustain IT, Treat IT, Trust IT, and Value IT.

This volume is one of 13 volumes associated with the 17 scientific conferences. Each volume covers a specific topic and separately or together they form a valuable record of the state of computing research in the world in 2010. Each volume was prepared for publication in the Springer IFIP Advances in Information and Communication Technology series by the conference’s volume editors. The overall Publications Chair for all volumes published for this congress is Mike Hinchey.

For full details of the World Computer Congress, please refer to the webpage at http://www.ifip.org.

June 2010  
Augusto Casaca, Portugal, Chair, International Program Committee 
Phillip Nyssen, Australia, Co-chair, International Program Committee 
Nick Tate, Australia, Chair, Organizing Committee 
Mike Hinchey, Ireland, Publications Chair 
Klaus Brunnstein, Germany, General Congress Chair
Preface

It is fitting that there was a World Computer Congress in the 50th anniversary year of IFIP. Within the Learn IT Stream of WCC2010, the conference, Key Competencies in the Knowledge Society (KCKS), brought together some 43 papers from around the world covering many areas of ICT and its role in education.

Of the papers presented here, three were selected as key theme papers for the KCKS conference. These papers’ by Adams and Tatnall, Tarragó and Wilson, Diethelm and Dörge, are included in these proceedings. We congratulate these authors for the quality of their work that led to selection.

The range of issues covered within this volume is too broad to set out here but covers, amongst other things, e-examination, Twitter, teacher education, school-based learning, methodological frameworks and human development theories.

It has been an exciting and rewarding task to put these papers together. They represent a coming together of great minds and cutting-edge research. We thank our contributors and our reviewers for producing such an impressive body of work.

Nicholas Reynolds
Márta Turcsányi-Szabó
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