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# **NEW FRONTIERS FOR ENTERTAINMENT COMPUTING**

## **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.

# NEW FRONTIERS FOR ENTERTAINMENT COMPUTING

*IFIP 20<sup>th</sup> World Computer Congress, First IFIP  
Entertainment Computing Symposium (ECS 2008),  
September 7-10, 2008, Milano, Italy*

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# IFIP 2008 World Computer Congress (WCC'08)

## Message from the Chairs

Every two years, the International Federation for Information Processing hosts a major event which showcases the scientific endeavours of its over one hundred Technical Committees and Working Groups. 2008 sees the 20th World Computer Congress (WCC 2008) take place for the first time in Italy, in Milan from 7-10 September 2008, at the MIC - Milano Convention Centre. The Congress is hosted by the Italian Computer Society, AICA, under the chairmanship of Giulio Occhini.

The Congress runs as a federation of co-located conferences offered by the different IFIP bodies, under the chairmanship of the scientific chair, Judith Bishop. For this Congress, we have a larger than usual number of thirteen conferences, ranging from Theoretical Computer Science, to Open Source Systems, to Entertainment Computing. Some of these are established conferences that run each year and some represent new, breaking areas of computing. Each conference had a call for papers, an International Programme Committee of experts and a thorough peer reviewed process. The Congress received 661 papers for the thirteen conferences, and selected 375 from those representing an acceptance rate of 56% (averaged over all conferences).

An innovative feature of WCC 2008 is the setting aside of two hours each day for cross-sessions relating to the integration of business and research, featuring the use of IT in Italian industry, sport, fashion and so on. This part is organized by Ivo De Lotto. The Congress will be opened by representatives from government bodies and Societies associated with IT in Italy.

This volume is one of fourteen volumes associated with the scientific conferences and the industry sessions. Each covers a specific topic and separately or together they form a valuable record of the state of computing research in the world in 2008. Each volume was prepared for publication in the Springer IFIP Series by the conference's volume editors. The overall Chair for all the volumes published for the Congress is John Impagliazzo.

For full details on the Congress, refer to the webpage <http://www.wcc2008.org>.

*Judith Bishop, South Africa, Co-Chair, International Program Committee*  
*Ivo De Lotto, Italy, Co-Chair, International Program Committee*  
*Giulio Occhini, Italy, Chair, Organizing Committee*  
*John Impagliazzo, United States, Publications Chair*

## **WCC 2008 Scientific Conferences**

<b>TC12</b>	<b>AI</b>	Artificial Intelligence 2008
<b>TC10</b>	<b>BICC</b>	Biologically Inspired Cooperative Computing
<b>WG 5.4</b>	<b>CAI</b>	Computer-Aided Innovation (Topical Session)
<b>WG 10.2</b>	<b>DIPES</b>	Distributed and Parallel Embedded Systems
<b>TC14</b>	<b>ECS</b>	Entertainment Computing Symposium
<b>TC3</b>	<b>ED_L2L</b>	Learning to Live in the Knowledge Society
<b>WG 9.7</b>	<b>HCE3</b>	History of Computing and Education 3
<b>TC3</b>		
<b>TC13</b>	<b>HCI</b>	Human Computer Interaction
<b>TC8</b>	<b>ISREP</b>	Information Systems Research, Education and Practice
<b>WG 12.6</b>	<b>KMIA</b>	Knowledge Management in Action
<b>TC2</b>	<b>OSS</b>	Open Source Systems
<b>WG 2.13</b>		
<b>TC11</b>	<b>IFIP SEC</b>	Information Security Conference
<b>TC1</b>	<b>TCS</b>	Theoretical Computer Science

### **IFIP**

- is the leading multinational, apolitical organization in Information and Communications Technologies and Sciences
- is recognized by United Nations and other world bodies
- represents IT Societies from 56 countries or regions, covering all 5 continents with a total membership of over half a million
- links more than 3500 scientists from Academia and Industry, organized in more than 101 Working Groups reporting to 13 Technical Committees
- sponsors 100 conferences yearly providing unparalleled coverage from theoretical informatics to the relationship between informatics and society including hardware and software technologies, and networked information systems

*Details of the IFIP Technical Committees and Working Groups can be found on the website at <http://www.ifip.org>.*

# Preface

Welcome to the International 1st IFIP Entertainment Computing Symposium on "New Frontiers for Entertainment Computing" (ECS-2008), which is part of the 20th IFIP World Computer Congress, to be held in Milano, Italy, September 7-10, 2008. On behalf of all the people who made this conference happen, we wish to welcome you to this international event.

During the past years the IFIP World Computer Congress offered an opportunity for researchers and practitioners to present their findings and research results in several prominent areas of computer science and engineering. This year, among other activities, IFIP launches a new initiative focused on all the relevant issues concerning Computing and Entertainment. As a result, the 2-day technical program of the Entertainment Computing Symposium (ECS) will provide a forum to address, explore and exchange information on the state-of-the-art of computer based entertainment and allied technologies, their design and use, and their impact on the society.

Within the emerging field of entertainment technologies, we need to tackle a broad range of technology, management and design issues, and we need to become familiar with newly introduced techniques and current applications. To this aim, the spectrum of papers presented at ECS will cover topics from system modeling and simulation to physics, professional gaming products, multimedia visualization, artificial intelligence, robotics, plus others designed to provide a wide range of topics as reflected in the technical program of the Conference. Those contributed papers have undergone a detailed peer paper review and helped us to achieve this goal. Special recognition goes to each of the contributing authors for their dedication and effort in their field of research. Our technical program bears testimony to the many challenges that the field of entertainment computing is stimulating. In particular the ECS technical program include the following papers:

Enhancing Artificial Intelligence in Games by Learning the Opponent's Playing Style

Fabio Aiolli and Claudio Palazzi

Using Game Engines for Visualization in Scientific Applications

Karl-Ingo Friese, Marc Herrlich and Franz-Erich Wolter

An Interactive Visual Canon Platform

Mathias Funk and Christoph Bartneck

Physical Emotion Induction and Its Use in Entertainment: Lessons Learned

Ralph Kok and Joost Broekens

Networked Virtual Marionette Theater

Daisuke Ninomiya, Kohji Miyazaki and Ryohei Nakatsu

Entertainment Computing in the Orbit

Matthias Rauterberg, Mark Neerinx, Karl Tuyls and Jack van Loon

A Collaborative Science Learning Game Environment for Informal Science Education: DinoQuest Online

Walt Scacchi and Robert Nideffer

Construction and Evaluation of a Robot Dance System

Kuniya Shinozaki, Akitsugu Iwatani and Ryohei Nakatsu

Context-aware fun and games with Bluetooth

Andy Sloane and Chris Dennett

Automatic Comic Generation from Game Log

Ruck Thawonmas and Tomonori Shuda

i.plot

Naoko Tosa and Seigow Matsuoka

Analysis and Generation of Japanese Folktales Based on Vladimir Propp's Methodology

Takenori Wama and Ryohei Nakatsu.

In addition to all the accepted papers, we assembled a program comprising also two keynote speeches given by Dr. Jason Chown (Sony Computer Entertainment Europe) and by Dr. Nicolas Gaume (Mimesis Republic, France).

On behalf of the Organizing Committee, we would like to extend our personal thanks to all the members of the International Program Committee, namely to: Christoph Bartneck, NL; Brad Bushman, US; Marc Cavazza, UK; Adrian Cheok, SG; Konstantinos Chorianopoulos, DE; Sidney Fels, CA; Nahum Gershon, US; Jan Klabbers, NL; David Obrazalek, CZ; Zhigeng Pan, CN; Claudio Pinhanez, US; Andy Sloane, UK; Bill Swartout, US; Naoko Tosa, JP; Gino Yu, HK.

Our sincere gratitude goes to them for their hard work in reviewing and selecting the best papers to be presented from all the received submissions. The success of this



conference is credited to them, as well as to session chairs, presenters and attendees. We are indebted also to the many individuals who have helped us to make ECS a successful event. A special thank goes to Gian Piero Favini, who took care of the conference management site and prepared the draft of the camera ready of these proceedings.

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