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# **HISTORY OF COMPUTING AND EDUCATION 3 (HCE3)**

## **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.

# HISTORY OF COMPUTING AND EDUCATION 3 (HCE3)

*IFIP 20<sup>th</sup> World Computer Congress, Proceedings  
of the Third IFIP Conference on the History of  
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*Edited by*

**John Impagliazzo**  
*Hofstra University  
USA*

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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>.*

## **Dedication**

***We dedicate this book***

*to the men and women who seek to preserve  
the legacy of the computing profession,  
particularly those associated with the  
education of future professionals in the  
computing field.*

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## Preface

These proceedings derive from an international conference on the history of computing and education. This conference is the third of hopefully a series of conferences that will take place within the International Federation for Information Processing (IFIP) and hence, we describe it as the “Third IFIP Conference on the History of Computing and Education” or simply “History of Computing and Education 3” (HCE3). This volume consists of a collection of articles presented at the HCE3 conference held in association with the IFIP 2008 World Computer Congress in Milano, Italy. Articles range from a wide variety of computing perspectives and they represent activities from six continents.

The HCE3 conference is an event of the IFIP Working Group 9.7 on the History of Computing, a working group of IFIP’s Technical Committee 9 (TC9) on the Relationship between Computers and Society. In addition, it is in cooperation with the IFIP Technical Committee 3 (TC3) on Education.

The HCE3 conference brings to light a broad spectrum of issues. It illustrates topics in computing as they occurred in the “early days” of computing whose ramifications or overtones remain with us today. Indeed, many of the early challenges remain part of our educational tapestry; most likely, many will evolve into future challenges. Therefore, these proceedings provide additional value to the reader as it will reflect in part the future development of computing and education to stimulate new ideas and models in educational development.

These proceedings provide a interesting articles spanning several topics of historical interest. The reader will find that these fascinating articles capture a historical perspective on the manner in which computing has affected formal and lifelong education in different parts of the world. They also preserve the computing legacies for future generations.

The HCE3 Program Committee expresses its gratitude to the organizers of the 2008 World Computer Congress for without their support, this conference would not be possible. We look forward to joining the presenters and attendees of the HCE3 conference and welcome all participants to this historic and interesting event.

*John Impagliazzo, Ph.D.*

New York, 2008 April

The original version of this book was revised.

An erratum to this book can be found at DOI [10.1007/978-0-387-09657-5\\_13](https://doi.org/10.1007/978-0-387-09657-5_13)

# **HCE3 Conference Organization**

## **The Third IFIP Conference on the History of Computing and Education 3 (HCE3)**

A co-located conference  
in cooperation with TC3 and organized under the auspices of the  
IFIP World Computer Congress (WCC) 2008  
Milano, Italy

### **John Impagliazzo**

HCE3 Program Committee Chair  
John.Impagliazzo@Hofstra.edu

### **Judith Bishop**

WCC International Program Committee Co-Chair  
jbishop@cs.up.ac.za

### **Ivo De Lotto**

WCC International Program Committee Co-Chair  
delotto@unipv.it

### **Giulio Occhini**

WCC 2008 Congress Chair  
g.occhini@aicanet.it

## **HCE3 Program Committee**

**John Impagliazzo** – Program Chair (United States)

**Corrado Bonfanti** (Italy)

**Rosa Maria Bottino** (Italy)

**Giorgio Casadei** (Italy)

**Bill Davey** (Australia)

**Lars Heide** (Denmark)

**Lena Olsson** (Sweden)

**Ramon Puigjaner** (Spain)

**Arthur Tatnall** (Australia)

**Jan Wibe** (Norway)