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Human-Computer Interaction – INTERACT 2013

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Proceedings, Part IV

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Foreword

INTERACT 2013 was the 14th of a series of INTERACT international conferences supported by the International Federation for Information Processing (IFIP) Technical Committee 13 on Human–Computer Interaction.

This year, INTERACT was held in Cape Town (South Africa), organized by the Nelson Mandela Metropolitan University (Port Elizabeth) and the Meraka Institute of Council for Scientific and Industrial Research (Pretoria) in collaboration with the University of Cape Town.

The Conference theme for INTERACT 2013, “Designing for Diversity,” recognizes the interdisciplinary, multidisciplinary and intercultural spirit of human–computer interaction (HCI) research and practice. The conference welcomes research and reports of practice that acknowledge diverse disciplines, abilities, cultures, and societies, and that address both the technical and social aspects of HCI. Within the broad umbrella of HCI, the conference sought contributions addressing new and emerging HCI disciplines, bridging cultural differences, and tackling important social problems.

Like its predecessors, INTERACT 2013 highlighted, to both the academic and the industrial world, the importance of the HCI discipline and its most recent breakthroughs on current applications. Both experienced HCI researchers and professionals, as well as newcomers to the HCI field, interested in designing or evaluating interactive software, developing new interaction technologies, or investigating overarching theories of HCI, found in INTERACT 2013 an exciting forum for communication with people of similar interests, to encourage collaboration and to learn.

INTERACT 2013 brought the conference to South Africa and Africa for the very first time. The African tradition of HCI focuses very much on the human and social aspects of HCI, recognizing the diversity of its people and the circumstance in which they go about their everyday lives. We hope that INTERACT 2013 will be remembered as a conference that brought the diversity of HCI research to the forefront, making the computerized world a better place for all, regardless of where they come from.

INTERACT 2013 took place 29 years after the first INTERACT held in September 1984 in London, UK. The IFIP Technical Committee 13 aims to develop the science and technology of the interaction between humans and computing devices through different Working Groups and Special Interests Groups, all of which, together with their officers, are listed within these proceedings.

We thank all the authors who chose INTERACT 2013 as the venue to publish their research. This was again an outstanding year for the conference in terms of submissions in all the technical categories, especially since the conference moved away from the traditional predominantly European venues. In total, we received 639 submissions. Of these, 270 submissions were accepted:

- 128 as full research papers
- 77 as short research papers
- 31 as interactive posters
- 2 as industrial programme papers
- 4 as panels
- 1 as a special interest group
- 1 as a tutorial
- 9 as workshops
- 9 to the African Masters Consortium
- 8 to the Doctoral Consortium

The acceptance rate for the full and short research papers was 31% and 45%, respectively.

A Programme Committee meeting consisting of the Technical Programme Chairs and the Track Chairs, as well as member of IFIP Technical Committee 13, preceded the final decision on which submissions to accept. This powerful effort was only possible thanks to the diligent work of many people. Our sincere gratitude goes to the almost 700 members of our International Programme Committee who willingly assisted and ensured the high quality of the INTERACT Conference papers was properly maintained. Although some people had to be bullied into reviewing (sorry about that), everyone submitted their reviews on time without a murmur of complaint. Thank you all for the effort that you so obviously put into this task. A special thank you must go to our Track Chairs, who put in a tremendous amount of work to ensure that quality was maintained throughout.

In addition, we have to thank the members of the Organizing Committee, the staff at the Council for Industrial and Scientific Research, Nelson Mandela Metropolitan University and the University of Cape Town for their unflagging assistance with all aspects of planning and managing the many administrative and organizational issues. We also have to thank our student volunteers for making sure that everything ran smoothly at the conference itself.

Finally, we wish to express a special thank you to the Proceedings Publication Chair, Marco Winckler, who painstakingly put this volume together.

September 2013

Paula Kotzé
Janet Wesson
(INTERACT 2013 Conference Chairs)
Gary Marsden
Gitte Lindgaard
(INTERACT 2013 Technical Programme Chairs)

IFIP TC13

Established in 1989, the International Federation for Information Processing Technical Committee on Human–Computer Interaction (IFIP TC13) is an international committee of 30 member national societies and seven Working Groups, representing specialists in human factors, ergonomics, cognitive science, computer science, design, and related disciplines. INTERACT is its flagship conference, staged biennially in different countries in the world.

IFIP TC13 aims to develop the science and technology of human–computer interaction (HCI) by encouraging empirical research, promoting the use of knowledge and methods from the human sciences in design and evaluation of computer systems; promoting better understanding of the relationship between formal design methods and system usability and acceptability; developing guidelines, models and methods by which designers may provide better human-oriented computer systems; and, cooperating with other groups, inside and outside IFIP, to promote user-orientation and humanization in system design. Thus, TC13 seeks to improve interactions between people and computers, encourage the growth of HCI research, and disseminate these benefits worldwide.

The main orientation is toward users, especially the non-computer professional users, and how to improve human–computer relations. Areas of study include: the problems people have with computers; the impact on people in individual and organizational contexts; the determinants of utility, usability, and acceptability; the appropriate allocation of tasks between computers and users; modeling the user to aid better system design; and harmonizing the computer to user characteristics and needs.

While the scope is thus set wide, with a tendency toward general principles rather than particular systems, it is recognized that progress will only be achieved through both general studies to advance theoretical understanding and specific studies on practical issues (e.g., interface design standards, software system consistency, documentation, appropriateness of alternative communication media, human factors guidelines for dialogue design, the problems of integrating multimedia systems to match system needs and organizational practices, etc.).

In 1999, TC13 initiated a special IFIP Award, the Brian Shackel Award, for the most outstanding contribution in the form of a refereed paper submitted to and delivered at each INTERACT. The award draws attention to the need for a comprehensive human-centered approach in the design and use of information technology in which the human and social implications have been taken into account. Since the process to decide the award takes place after papers are submitted for publication, the award is not identified in the proceedings.

IFIP TC13 stimulates working events and activities through its Working Groups (WGs) and Special Interest Groups (SIGs). WGs and SIGs consist of HCI experts from many countries, who seek to expand knowledge and find solutions to HCI issues and concerns within their domains, as outlined below.

- WG13.1 (Education in HCI and HCI Curricula) aims to improve HCI education at all levels of higher education, coordinate and unite efforts to develop HCI curricula and promote HCI teaching.
- WG13.2 (Methodology for User-Centered System Design) aims to foster research, dissemination of information and good practice in the methodical application of HCI to software engineering.
- WG13.3 (HCI and Disability) aims to make HCI designers aware of the needs of people with disabilities and encourage development of information systems and tools permitting adaptation of interfaces to specific users.
- WG13.4 (also WG2.7) (User Interface Engineering) investigates the nature, concepts and construction of user interfaces for software systems, using a framework for reasoning about interactive systems and an engineering model for developing user interfaces.
- WG13.5 (Human Error, Safety and System Development) seeks a framework for studying human factors relating to systems failure, develops leading-edge techniques in hazard analysis and safety engineering of computer-based systems, and guides international accreditation activities for safety-critical systems.
- WG13.6 (Human-Work Interaction Design) aims at establishing relationships between extensive empirical work-domain studies and HCI design. It will promote the use of knowledge, concepts, methods and techniques that enable user studies to procure a better apprehension of the complex interplay between individual, social and organizational contexts and thereby a better understanding of how and why people work in the ways that they do.
- WG13.7 (Human-Computer Interaction and Visualization) is the newest of the working groups under the TC13. It aims to establish a study and research program that will combine both scientific work and practical applications in the fields of HCI and visualization. It will integrate several additional aspects of further research areas, such as scientific visualization, data mining, information design, computer graphics, cognition sciences, perception theory, or psychology, into this approach.
- SIG 13.1 (HCI and International Development) aims to promote the application of interaction design research, practice and education to address the needs, desires and aspirations of people in the developing world; support and develop the research, practice and education capabilities of HCI institutions and organizations based in the developing world; develop links between the HCI community in general, and IFIP TC13 in particular, with other relevant communities involved in development, especially IFIP WG 9.4 Computers in Developing Countries.

- SIG 13.2 (Interaction Design and Children) aims to provide a forum for all things relating to interaction design and HCI where the intended users or appropriators of the technology or service are children. The definition of children is broad rather than narrow, including toddlers and teenagers, but the core work, currently at least, is with children in junior schools.

New Working Groups and Special Interest Groups are formed as areas of significance to HCI arise. Further information is available at the IFIP TC13 website: <http://www.tc13.org>

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