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Foreword

Advances in interactivity, computing power, mobile devices, large displays and ubiquitous computing offer an ever-increasing potential for empowering users. This can happen within their working environment, in their leisure time or even when extending their social skills. While such empowerment could be seen as a way of connecting people in their workspace, home or on the move, it could also generate gaps requiring larger effort and resources to fruitfully integrate disparate and heterogeneous computing systems.

The conference theme of INTERACT 2011 was "building bridges" as we believe human–computer interaction (HCI) is one the research domains more likely to significantly contribute to bridging such gaps. This theme thus recognizes the interdisciplinary and intercultural spirit that lies at the core of HCI research. The conference had the objective of attracting research that bridges disciplines, cultures and societies. Within the broad umbrella of HCI, we were in particular seeking high-quality contributions opening new and emerging HCI disciplines, bridging cultural differences, and tackling important social problems. Thus, INTERACT 2011 provided a forum for practitioners and researchers to discuss all aspects of HCI, including these challenges. The scientific contributions gathered in these proceedings clearly demonstrate the huge potential of that research domain to improving both user experience and performance of people interacting with computing devices. The conference also is as much about building bridges on the human side (between disciplines, cultures and society) as on the computing realm.

INTERACT 2011 was the 13th conference of the series, taking place 27 years after the first INTERACT held in early September 1984 in London, UK. Since INTERACT 1990 the conferences have taken place under the aegis of the UNESCO International Federation for Information Processing (IFIP) Technical Committee 13. This committee aims at developing 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.

INTERACT 2011 was the first conference of its series to be organized in cooperation with ACM SIGCHI, the Special Interest Group on Computer–Human Interaction of the Association for Computing Machinery. We believe that this cooperation was very useful in making the event both more attractive and visible to the worldwide scientific community developing research in the field of HCI.

We thank all the authors who chose INTERACT 2011 as the venue to publish their research This was a record year for the conference in terms of submissions in the main technical categories. For the main Technical Program there were a total of 680 submissions, including 402 long and 278 short papers, out of which we accepted 171 (111 long and 60 short submissions), for a combined acceptance rate of less than 25%. Overall, from a total of 741 submissions for all tracks, 290 were accepted, as follows:

- 111 Full Research Papers
- 60 Short Research Papers
- 54 Interactive Poster Papers
- 17 Doctoral Consortium Papers
- 16 Workshops
- 12 Tutorials
- 5 Demonstrations
- 6 Organizational Overviews
- 4 Industrial Papers
- 3 Special Interest Groups
- 2 Panels

Our sincere gratitude goes to the members of our Program Committee (PC), who devoted countless hours to ensure the high quality of the INTERACT Conference. This year, we improved the reviewing process by moving to an associate chair model. With almost 700 submitted papers, it is impossible for the PC Chairs to read every paper. We recruited 103 Associate Chairs (ACs), each of whom handled up to 12 papers. The ACs recruited almost 800 external reviewers, guaranteeing that each paper was reviewed by three to six referees. ACs also provided a meta-review. Internal discussion among all the reviewers preceded the final decision between the PC Chairs and the AC. This herculean effort was only possible due to the diligent work of many people. We would like to thank you all for the effort and apologize for all the bullying required to get the work done on time.

In addition, sincere thanks must be extended to those whose contributions were essential in making it possible for the conference to happen and for these proceedings to be produced. We owe a great debt to the Conference Committees, the members of the International Program Committee and the numerous reviewers who had to review submissions from the various categories. Similarly, the members of the conference Organizing Committee, the staff at INESC-ID, especially Manuela Sado, deserve much appreciation for their tireless help with all aspects of planning and managing the many administrative and organizational issues. We would like to especially thank Tiago Guerreiro for his dedication with the Student Volunteer program, and José Coelho who worked tirelessly to make the online program a reality. Thanks are also due to Alfredo Ferreira for keeping and single-handedly maintaining the website, and to Pedro Campos and Marco Winkler for the superb work done with the conference proceedings. Finally, our thanks go to all the authors who actually did the scientific work and especially to the presenters who took the additional burden of discussing the results with their peers at INTERACT 2011 in Lisbon.

July 2011

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IFIP TC13

Established in 1989, the International Federation for Information Processing Technical Committee on Human–Computer Interaction (IFIP TC13) is an international committee comprising 30 national societies and 7 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 relation 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 world-wide.

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; modelling 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 multi-media systems to match system needs and organizational practices, etc.).

IFIP TC13 stimulates working events and activities through its working groups (WGs). WGs 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.

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.

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 promotes the use of knowledge, concepts, methods and techniques that enables 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 TC.13. It aims to establish a study and research program that combines both scientific work and practical applications in the fields of human–computer interaction and visualization. It integrates 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.

New WGs are formed as areas of significance to HCI arise. Further information is available on the IFIP TC13 website: http://csmobile.upe.ac.za/ifip

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