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Gerhard Goos, Juris Hartmanis, and Jan van Leeuwen

Jan Gulliksen Morton Borup Harning
Philippe Palanque Gerrit C. van der Veer
Janet Wesson (Eds.)

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Volume Editors

Jan Gulliksen
Uppsala University, Uppsala, Sweden
E-mail: jan.gulliksen@it.uu.se

Morton Borup Harning
Priway ApS, Lyngby, Denmark
E-mail: harning@se-hci.org

Philippe Palanque
Institute of Research in Informatics of Toulouse (IRIT)
University Paul Sabatier, Toulouse, France
E-mail: palanque@irit.fr

Gerrit C. van der Veer
School of Computer Science
Open Universiteit Nederland
Heerlen, The Netherlands
E-mail: gerrit.vanderVeer@ou.nl

Janet Wesson
Nelson Mandela Metropolitan University
Port Elizabeth, South Africa
E-mail: janet.wesson@nmmu.ac.za

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Preface

Engineering Interactive Systems 2007 is an IFIP working conference that brings together researchers and practitioners interested in strengthening the scientific foundations of user interface design, examining the relationship between software engineering (SE) and human–computer interaction (HCI) and on how user-centerd design (UCD) could be strengthened as an essential part of the software engineering process.

Engineering Interactive Systems 2007 was created by merging three conferences:

- HCSE 2007 – Human-Centerd Software Engineering held for the first time. The HCSE Working Conference is a multidisciplinary conference entirely dedicated to advancing the basic science and theory of human-centerd software systems engineering. It is organized by IFIP WG 13.2 on Methodologies for User-Centerd Systems Design.
- EHCI 2007 – Engineering Human Computer Interaction was held for the tenth time. EHCI aims to investigate the nature, concepts, and construction of user interfaces for software systems. It is organized by IFIP WG 13.4/2.7 on User Interface Engineering.
- DSV-IS 2007 – Design, Specification and Verification of Interactive Systems was held for the 13th time. DSV-IS provides a forum where researchers working on model-based techniques and tools for the design and development of interactive systems can come together with practitioners and with those working on HCI models and theories.

Almost half of the software in systems being developed today and 37%–50% of the efforts throughout the software lifecycle are related to the system's user interface. For this reason problems and methods from the field of HCI affect the overall process of SE tremendously, and vice versa. Yet despite these powerful reasons to practice and apply effective SE and HCI methods, major gaps of understanding still exist, both between the suggested practice, provided through methods, tools and models, and how software is actually being developed in industry (between theory and practice), and between the best practices of each of the fields.

The standard curricula for each field make little (if any) reference to the other field and certainly do not teach how to interact with the other field. There are major gaps of communication between the HCI and SE fields: the architectures, processes, methods, and vocabulary being used in each community are often foreign to the other community. As a result, product quality is not as high as it could be, and otherwise possibly avoidable re-work is frequently necessary.

SE technology used in building tomorrow's interactive systems must place a greater emphasis on designing usable systems that meet the needs of the users. HCI, SE, computer science, psychology as well as many other researchers from other related disciplines have developed, sometimes independently from the engineering lifecycle, various tools and techniques for achieving these goals. Unfortunately, even if big

software development organizations as well as a few enlightened practitioners have recognized their importance and/or have considered them when developing their products, these techniques are still relatively unknown, under used, difficult to master, and most fundamentally they are not well integrated in SE practices.

Despite all the knowledge on usability and user-centerd systems design, most computer systems today are developed with a minimum of user involvement hence resulting in systems that do not fit the users' needs and expectations sufficiently. Similarly the scientific fields of SE (dealing with the processes by which systems are being developed) and HCI (dealing with the user's use of the system) rarely meet. There is a growing awareness that these two scientific fields need to meet on equal terms to discuss and resolve the potential conflicts in the approaches proposed by the two perspectives. This is the main reasons for our efforts to arrange a venue for these different fields to meet, interact, and share our knowledge and experiences, to increase the focus on users and usability in the SE processes, methods and tools, and to provide a deepened understanding among HCI researchers and practitioners of the emerging need to relate to the processes and practices of SE professionals.

The list of topics for the conference was compiled from the list of topics traditionally included for each of the three conferences, but with the added aim of creating a list of topics that would foster a fruitful discussion helping to bring SE issues and user interface design concerns as well UCD issues closer together.

Integration of SE and UCD

- Towards a theory for human-centerd systems engineering
- Incorporating guidelines and principles for designing usable products into the development processes
- Usability through the requirements specification
- Representations for design in the development process
- Working with usability with commercial development processes such as Rational Unified Process (RUP), Dynamic Systems Development Method (DSDM), eXtreme Programming (XP), Agile processes, etc.
- Social and organizational aspects of software development in a lifecycle perspective

SE aspects of user interfaces

- Software architecture
- Formal methods in HCI
- HCI models and model-driven engineering
- Impact of distribution on user interfaces
- Portability, consistency, integration
- Development processes
- Case studies

User interface tools and techniques

- Adaptive and customizable systems
- Interfaces for restricted environments

- Interfaces for multiple devices
- Web-based systems
- Evaluation of user interfaces: technologies and tools

Engineering aspects of innovative user interfaces

- Interfaces for mobile devices
- Wearable computing
- New interface technologies
- Information visualization and navigation
- Multimodal user interfaces
- Interfaces for groupware
- Virtual reality, augmented reality
- Games

A total of 37 papers were selected for presentation forming sessions on analysis and verification, task and engineering models, design for use in context, architecture, models for reasoning, and finally patters and guidelines.

Following the EHCI working conference tradition, the proceedings include transcripts of paper discussions.

Jan Gulliksen
Morten Borup Harning

Table of Contents