Lecture Notes in Computer Science **11262**

Commenced Publication in 1973
Founding and Former Series Editors:
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Human-Centered Software Engineering

7th IFIP WG 13.2 International Working Conference, HCSE 2018
Sophia Antipolis, France, September 3–5, 2018
Revised Selected Papers

Springer

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ISSN 0302-9743 ISSN 1611-3349 (electronic)
Lecture Notes in Computer Science
ISBN 978-3-030-05908-8 ISBN 978-3-030-05909-5 (eBook)
https://doi.org/10.1007/978-3-030-05909-5

Library of Congress Control Number: 2018964130

LNCS Sublibrary: SL2 – Programming and Software Engineering

This Springer imprint is published by the registered company Springer Nature Switzerland AG
The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

Foreword

The 7th International Working Conference on Human-Centered Software Engineering, HCSE 2018, was held during September 3–5, 2018, on the SophiaTech Campus of the University of Nice Sophia Antipolis, which is located in the French Riviera. HCSE is a bi-annual, single-track working conference organized by the IFIP Working Group 13.2 on Methodology for User-Centred System Design, which aims at bringing together researchers and practitioners interested in strengthening the scientific foundations of user interface design, examining the relationship between software engineering and human–computer interaction and on how to strengthen human-centered design as an essential part of software engineering processes. Previous events were held in Salamanca, Spain (2007); Pisa, Italy (2008); Reykjavik, Iceland (2010); Toulouse, France (2012); and Paderborn, Germany (2014); and Stockholm, Sweden (2016).

This edition of HCSE was focused on the interdependencies (overlapping and possibly conflicting dependencies that might occur) between user interface properties (such as usability, ux, privacy, trust, security, reliability, among others). We were also concerned by how stakeholders and developers value diverse user interface properties and how they manage conflicts between them (when a property might degrade the value of another). Our aim was to cover a large set of user interface properties and try to reveal their inner dependencies. The ultimate goal was to contribute to the development of theories, methods, tools, and approaches for dealing with multiple properties that should be taken into account when developing interactive system.

The HCSE 2018 program received contributions from Austria, Belgium, Canada, Denmark, Finland, France, Germany, Iceland, Italy, Malaysia, Netherlands, Nigeria, Norway, Portugal, Russia, Spain, Sweden, Tunisia, and the UK. All contributions were peer-reviewed and received at least three reviews in each of the two rounds of reviews including meta-reviewing and shepherding. The Program Committee made use of the possibility to recommend accepting submissions in other categories than they were originally submitted for in some cases. The final decision on acceptance was based on an additional meta-review after the authors had improved their contributions according to the review results. In addition, authors of accepted contributions were invited to improve their work according to the comments and suggestions received during the conference before being included in the present proceedings. In total, HCSE accepted 11 full research papers (acceptance rate of 38%), seven late-breaking results (acceptance rate of 24%), and posters and demos. Our sincere gratitude goes to the members of our Program Committee, who devoted countless hours to providing valuable feedback to authors and ensuring the high quality of the HCSE 2018 technical program.

The program was organized in five technical sessions, a demonstration session, and the inspiring keynote “Functionality, Security, Usability – Pick 2? A Passionate Argument Against False Tradeoffs” delivered by Prof. Angela Sasse, from Ruhr University Bochum, Germany. We thank Prof. Dr. Angela Sasse for the inspiring talk. Similarly to the previous editions of HCSE, we ran an interactive session where the

participants worked together in small groups on the identification of the dependencies between properties and proposing solutions to overcome possible conflicts. The results were reported in a plenary session where participants were able to comment and to contribute to the ideas. We thank Prof. Regina Berhnaupt, from Eindhoven University of Technology, The Netherlands, for organizing and chairing the interactive session. The conference program is available at http://www.hcse-conference.org/programme/.

HCSE 2018 was sponsored by the Université Nice Sophia Antipolis, Les Bibliothèques Nationales, Inria, CNRS, tobbi pro, laboratory I3S, Springer, and the IFIP TC13 whose generous support was essential for making HCSE 2018 special and successful! We also would like to thank our devoted members of the Program Committee who were responsible for the quality of the papers selected for presentation at the conference. Finally, our thanks go to all the authors who did the research work and especially to the presenters who sparked inspiring discussions with all the participants at HCSE 2018 in Sophia Antipolis.

For further information about past and future events organized by the IFIP WG 13.2, their members and activities, please visit the website http://ifip-tc13.org/working-groups/working-group-13-2/.

November 2018

Marco Winckler
Kati Kuusinen

IFIP TC13 - http://ifip-tc13.org/

Established in 1989, the International Federation for Information Processing Technical Committee on Human–Computer Interaction (IFIP TC 13) is an international committee of 37 member national societies and 10 Working Groups (WGs), representing specialists of the various disciplines contributing to the field of human–computer interaction (HCI). This includes (among others) human factors, ergonomics, cognitive science, computer science, and design.

IFIP TC 13 aims to develop the science, technology, and societal aspects of HCI by: encouraging empirical research; promoting the use of knowledge and methods from the human sciences in the 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, TC 13 seeks to improve interactions between people and computers, to encourage the growth of HCI research and its practice in industry and to disseminate these benefits worldwide.

The main aim is to place the users at the center of the development process. Areas of study include: the problems people face when interacting with computers; the impact of technology deployment on people in individual and organizational contexts; the determinants of utility, usability, acceptability, and user experience; the appropriate allocation of tasks between computers and users especially in the case of automation; modeling the user, their tasks, and the interactive system 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 resilience, documentation, training material, appropriateness of alternative interaction technologies, guidelines, the problems of integrating multimedia systems to match system needs and organizational practices, etc.).

IFIP TC 13 stimulates working events and activities through its 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. The list of WGs and their area of interest is given 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.

WG 13.5 (Resilience, Reliability, Safety, and Human Error in 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 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) aims to establish a study and research program that will combine both scientific work and practical applications in the fields of human–computer interaction 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.

WG13.8 (Interaction Design and International Development) is currently working to reformulate its aims and scope.

WG13.9 (Interaction Design and Children) aims to support practitioners, regulators, and researchers to develop the study of interaction design and children across international contexts.

WG13.10 (Human-Centred Technology for Sustainability) aims to promote research, design, development, evaluation, and deployment of human-centered technology to encourage sustainable use of resources in various domains.

New WGs are formed as areas of significance in HCI arise. Further information is available at the IFIP TC13 website: http://ifip-tc13.org/.

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