

Commenced Publication in 1973

Founding and Former Series Editors:

Gerhard Goos, Juris Hartmanis, and Jan van Leeuwen

Editorial Board

David Hutchison

Lancaster University, Lancaster, UK

Takeo Kanade

Carnegie Mellon University, Pittsburgh, PA, USA

Josef Kittler

University of Surrey, Guildford, UK

Jon M. Kleinberg

Cornell University, Ithaca, NY, USA

Friedemann Mattern

ETH Zurich, Zürich, Switzerland

John C. Mitchell

Stanford University, Stanford, CA, USA

Moni Naor

Weizmann Institute of Science, Rehovot, Israel

C. Pandu Rangan

Indian Institute of Technology, Madras, India

Bernhard Steffen

TU Dortmund University, Dortmund, Germany

Demetri Terzopoulos

University of California, Los Angeles, CA, USA

Doug Tygar

University of California, Berkeley, CA, USA

Gerhard Weikum

Max Planck Institute for Informatics, Saarbrücken, Germany

More information about this series at <http://www.springer.com/series/7409>

Aaron Marcus (Ed.)

Design, User Experience, and Usability

Interactive Experience Design

4th International Conference, DUXU 2015
Held as Part of HCI International 2015
Los Angeles, CA, USA, August 2–7, 2015
Proceedings, Part III

Editor
Aaron Marcus
Aaron Marcus and Associates
Berkeley, CA
USA

ISSN 0302-9743 ISSN 1611-3349 (electronic)
Lecture Notes in Computer Science
ISBN 978-3-319-20888-6 ISBN 978-3-319-20889-3 (eBook)
DOI 10.1007/978-3-319-20889-3

Library of Congress Control Number: 2015942472

LNCS Sublibrary: SL3 – Information Systems and Applications, incl. Internet/Web, and HCI

Springer Cham Heidelberg New York Dordrecht London
© Springer International Publishing Switzerland 2015

This work is subject to copyright. All rights are reserved by the Publisher, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, reuse of illustrations, recitation, broadcasting, reproduction on microfilms or in any other physical way, and transmission or information storage and retrieval, electronic adaptation, computer software, or by similar or dissimilar methodology now known or hereafter developed.

The use of general descriptive names, registered names, trademarks, service marks, etc. in this publication does not imply, even in the absence of a specific statement, that such names are exempt from the relevant protective laws and regulations and therefore free for general use.

The publisher, the authors and the editors are safe to assume that the advice and information in this book are believed to be true and accurate at the date of publication. Neither the publisher nor the authors or the editors give a warranty, express or implied, with respect to the material contained herein or for any errors or omissions that may have been made.

Printed on acid-free paper

Springer International Publishing AG Switzerland is part of Springer Science+Business Media
(www.springer.com)

Foreword

The 17th International Conference on Human-Computer Interaction, HCI International 2015, was held in Los Angeles, CA, USA, during 2–7 August 2015. The event incorporated the 15 conferences/thematic areas listed on the following page.

A total of 4843 individuals from academia, research institutes, industry, and governmental agencies from 73 countries submitted contributions, and 1462 papers and 246 posters have been included in the proceedings. These papers address the latest research and development efforts and highlight the human aspects of design and use of computing systems. The papers thoroughly cover the entire field of Human-Computer Interaction, addressing major advances in knowledge and effective use of computers in a variety of application areas. The volumes constituting the full 28-volume set of the conference proceedings are listed on pages VII and VIII.

I would like to thank the Program Board Chairs and the members of the Program Boards of all thematic areas and affiliated conferences for their contribution to the highest scientific quality and the overall success of the HCI International 2015 conference.

This conference could not have been possible without the continuous and unwavering support and advice of the founder, Conference General Chair Emeritus and Conference Scientific Advisor, Prof. Gavriel Salvendy. For their outstanding efforts, I would like to express my appreciation to the Communications Chair and Editor of HCI International News, Dr. Abbas Moallem, and the Student Volunteer Chair, Prof. Kim-Phuong L. Vu. Finally, for their dedicated contribution towards the smooth organization of HCI International 2015, I would like to express my gratitude to Maria Pitsoulaki and George Paparoulis, General Chair Assistants.

May 2015

Constantine Stephanidis
General Chair, HCI International 2015

HCI International 2015 Thematic Areas and Affiliated Conferences

Thematic areas:

- Human-Computer Interaction (HCI 2015)
- Human Interface and the Management of Information (HIMI 2015)

Affiliated conferences:

- 12th International Conference on Engineering Psychology and Cognitive Ergonomics (EPCE 2015)
- 9th International Conference on Universal Access in Human-Computer Interaction (UAHCI 2015)
- 7th International Conference on Virtual, Augmented and Mixed Reality (VAMR 2015)
- 7th International Conference on Cross-Cultural Design (CCD 2015)
- 7th International Conference on Social Computing and Social Media (SCSM 2015)
- 9th International Conference on Augmented Cognition (AC 2015)
- 6th International Conference on Digital Human Modeling and Applications in Health, Safety, Ergonomics and Risk Management (DHM 2015)
- 4th International Conference on Design, User Experience and Usability (DUXU 2015)
- 3rd International Conference on Distributed, Ambient and Pervasive Interactions (DAPI 2015)
- 3rd International Conference on Human Aspects of Information Security, Privacy and Trust (HAS 2015)
- 2nd International Conference on HCI in Business (HCIB 2015)
- 2nd International Conference on Learning and Collaboration Technologies (LCT 2015)
- 1st International Conference on Human Aspects of IT for the Aged Population (ITAP 2015)

Conference Proceedings Volumes Full List

1. LNCS 9169, Human-Computer Interaction: Design and Evaluation (Part I), edited by Masaaki Kurosu
2. LNCS 9170, Human-Computer Interaction: Interaction Technologies (Part II), edited by Masaaki Kurosu
3. LNCS 9171, Human-Computer Interaction: Users and Contexts (Part III), edited by Masaaki Kurosu
4. LNCS 9172, Human Interface and the Management of Information: Information and Knowledge Design (Part I), edited by Sakae Yamamoto
5. LNCS 9173, Human Interface and the Management of Information: Information and Knowledge in Context (Part II), edited by Sakae Yamamoto
6. LNAI 9174, Engineering Psychology and Cognitive Ergonomics, edited by Don Harris
7. LNCS 9175, Universal Access in Human-Computer Interaction: Access to Today's Technologies (Part I), edited by Margherita Antona and Constantine Stephanidis
8. LNCS 9176, Universal Access in Human-Computer Interaction: Access to Interaction (Part II), edited by Margherita Antona and Constantine Stephanidis
9. LNCS 9177, Universal Access in Human-Computer Interaction: Access to Learning, Health and Well-Being (Part III), edited by Margherita Antona and Constantine Stephanidis
10. LNCS 9178, Universal Access in Human-Computer Interaction: Access to the Human Environment and Culture (Part IV), edited by Margherita Antona and Constantine Stephanidis
11. LNCS 9179, Virtual, Augmented and Mixed Reality, edited by Randall Shumaker and Stephanie Lackey
12. LNCS 9180, Cross-Cultural Design: Methods, Practice and Impact (Part I), edited by P.L. Patrick Rau
13. LNCS 9181, Cross-Cultural Design: Applications in Mobile Interaction, Education, Health, Transport and Cultural Heritage (Part II), edited by P.L. Patrick Rau
14. LNCS 9182, Social Computing and Social Media, edited by Gabriele Meiselwitz
15. LNAI 9183, Foundations of Augmented Cognition, edited by Dylan D. Schmorro and Cali M. Fidopiastis
16. LNCS 9184, Digital Human Modeling and Applications in Health, Safety, Ergonomics and Risk Management: Human Modeling (Part I), edited by Vincent G. Duffy
17. LNCS 9185, Digital Human Modeling and Applications in Health, Safety, Ergonomics and Risk Management: Ergonomics and Health (Part II), edited by Vincent G. Duffy
18. LNCS 9186, Design, User Experience, and Usability: Design Discourse (Part I), edited by Aaron Marcus
19. LNCS 9187, Design, User Experience, and Usability: Users and Interactions (Part II), edited by Aaron Marcus
20. LNCS 9188, Design, User Experience, and Usability: Interactive Experience Design (Part III), edited by Aaron Marcus

21. LNCS 9189, Distributed, Ambient and Pervasive Interactions, edited by Norbert Streitz and Panos Markopoulos
22. LNCS 9190, Human Aspects of Information Security, Privacy and Trust, edited by Theo Tryfonas and Ioannis Askoxylakis
23. LNCS 9191, HCI in Business, edited by Fiona Fui-Hoon Nah and Chuan-Hoo Tan
24. LNCS 9192, Learning and Collaboration Technologies, edited by Panayiotis Zaphiris and Andri Ioannou
25. LNCS 9193, Human Aspects of IT for the Aged Population: Design for Aging (Part I), edited by Jia Zhou and Gavriel Salvendy
26. LNCS 9194, Human Aspects of IT for the Aged Population: Design for Everyday Life (Part II), edited by Jia Zhou and Gavriel Salvendy
27. CCIS 528, HCI International 2015 Posters' Extended Abstracts (Part I), edited by Constantine Stephanidis
28. CCIS 529, HCI International 2015 Posters' Extended Abstracts (Part II), edited by Constantine Stephanidis

Design, User Experience and Usability

Program Board Chair: Aaron Marcus, USA

- Sisira Adikari, Australia
- Claire Ancient, UK
- Randolph G. Bias, USA
- Jamie Blustein, Canada
- Jan Brejcha, Czech Republic
- Marc Fabri, UK
- Patricia Flanagan, Hong Kong
- Emilie Gould, USA
- Luciane Maria Fadel, Brazil
- Brigitte Herrmann, Germany
- Steffen Hess, Germany
- Nouf Khashman, Canada
- Francisco Rebelo, Portugal
- Kerem Rızvanođlu, Turkey
- Javed Anjum Sheikh, Pakistan
- Marcelo Soares, Brazil
- Carla G. Spinillo, Brazil
- Katia Canepa Vega, Brazil

The full list with the Program Board Chairs and the members of the Program Boards of all thematic areas and affiliated conferences is available online at:

<http://www.hci.international/2015/>



HCI International 2016

The 18th International Conference on Human-Computer Interaction, HCI International 2016, will be held jointly with the affiliated conferences in Toronto, Canada, at the Westin Harbour Castle Hotel, 17–22 July 2016. It will cover a broad spectrum of themes related to Human-Computer Interaction, including theoretical issues, methods, tools, processes, and case studies in HCI design, as well as novel interaction techniques, interfaces, and applications. The proceedings will be published by Springer. More information will be available on the conference website: <http://2016.hci.international/>.

General Chair

Prof. Constantine Stephanidis

University of Crete and ICS-FORTH

Heraklion, Crete, Greece

Email: general_chair@hci2016.org

<http://2016.hci.international/>



Contents – Part III

Designing the Social Media Experience

Social Media Interactions and the Use of Third-Party Management Applications on Effectiveness and Perception of Information	3
<i>Çakır Aker and Özgürol Öztürk</i>	
Design Process of a Social Network System for Storage and Share Files in the Workplace.	13
<i>Heloisa Candello, Silvia Bianchi, and Leandro Cassa</i>	
Evolution of e-Research: From Infrastructure Development to Service Orientation	25
<i>Hashim Iqbal Chunpir, Thomas Ludwig, and Dean N. Williams</i>	
Visualizing Group User Behaviors for Social Network Interaction Design Iteration	36
<i>Zhenyu Gu, Jia Ming Yu, Zhanwei Wu, and Zhan Xun Dong</i>	
Understanding the Semantics of Web Interface Signs: A Set of Ontological Principals.	46
<i>Muhammad Nazrul Islam and A.K.M. Najmul Islam</i>	
Cultural Reflections in Qatari Government Websites	54
<i>Nouf Khashman</i>	
Usability Analysis of IxDA.org.	63
<i>Julija Naskova</i>	
How We Perceive Search Engines.	74
<i>Leonardo Penna and Manuela Quaresma</i>	
Clicking Through Endless Seas: Understanding User Experience in the Design of Journalistic Websites	82
<i>Ben Posetti</i>	
Origins and Perspectives on Designing Virtual Communities of Practice for Permanent Education: A Case Study in the Collective Health Sector	94
<i>Carlos Eduardo Ribeiro and Cláudia Renata Mont’Alvão</i>	
The Challenges and Opportunities of Designing National Digital Services for Cross-Border Use.	104
<i>Molly Schwartz and Heli Kautonen</i>	

Designing the Learning Experience

Heuristic Evaluation of University Institutional Repositories Based on DSpace	119
<i>Maha Aljohani and James Blustein</i>	
Building Information Architecture Criteria for Assessing and Evaluating Universities’ Web Portals.	131
<i>Hamad Ibrahim Alomran</i>	
Designing with Young Children: Lessons Learned from a Co-creation of a Technology-Enhanced Playful Learning Environment	142
<i>Nanna Borum, Eva Petersson Brooks, and Anthony Lewis Brooks</i>	
Application of Dashboards and Scorecards for Learning Models IT Risk Management: A User Experience.	153
<i>Ernesto Celi</i>	
Mapping Metaphors for the Design of Academic Library Websites	166
<i>Ming-Hsin Phoebe Chiu</i>	
A Holistic Approach to User Experience in the Context of an Academic Library Interactive System	173
<i>Andrea Alessandro Gasparini</i>	
Antique School Furniture, New Technological Features Needs	185
<i>Andreia Gomes, Ernesto Filgueiras, and Luis Lavin</i>	
Analysis of Usability and Information Architecture of the UFRN Institutional Repository	197
<i>Débora Koshiyama, André Luís Santos de Pinho, and José Guilherme Santa Rosa</i>	
Ergonomic and Usability Analysis of Interactive Whiteboards in the Academic Environment.	208
<i>Eduardo Oliveira, Erick Vasconcelos, Elzani Sobral, Sayonara Bittencourt, Tiago Ramos, and Marcelo M. Soares</i>	
E-Learning Platforms and Lacking Motivation in Students: Concept of Adaptable UI for Online Courses	218
<i>Hana Ovesleová</i>	
A Usability Study with Children on an Online Educational Platform	228
<i>Tuba Ugras and Orhan Sener</i>	
Evaluating an Education Department Portal: A Case Study.	240
<i>Xiaojun Yuan, Huahai Yang, Kathleen Moorhead, and Kathleen DeMers</i>	

Designing the Playing Experience

Ads-on Games and Fake Brands: Interactions, Commercials and Playful Branding	251
<i>Herlander Elias, Ernesto Filgueiras, and Breno Carvalho</i>	
Heartbeat Jenga: A Biofeedback Board Game to Improve Coordination and Emotional Control.	263
<i>Yu-Chun Huang and Chung-Hay Luk</i>	
Evaluation of User Experience in Interaction with Computer Games	271
<i>Tihana Lapaš and Tihomir Orehovački</i>	
<i>Doctor Who</i> : Legacy, an Analysis of Usability and Playability of a Multi-platform Game	283
<i>Rennan Raffaele, Renato Alencar, Iran Júnior, Bruno Colley, Gabriel Pontes, Breno Carvalho, and Marcelo M. Soares</i>	
Newsgames: Gameplay and Usability in Simulation Games	292
<i>Carla Teixeira, Breno Carvalho, Jarbas Agra, Valeska Martins, Anthony Lins, Marcelo M. Soares, and André Neves</i>	
Improving Song Guessing Games Through Music Track Composition	303
<i>João Marcelo Teixeira, Dicksson Almeida, Edvar Neto, and Veronica Teichrieb</i>	
Evaluating and Customizing User Interaction in an Adaptive Game Controller	315
<i>Leonardo Torok, Mateus Pelegrino, Jefferson Lessa, Daniela Gorski Trevisan, Cristina N. Vasconcelos, Esteban Clua, and Anselmo Montenegro</i>	
New Research Methods for Media and Cognition Experiment Course	327
<i>Yi Yang, Shengjin Wang, and Liangrui Peng</i>	

Designing the Urban Experience

Learning from Hourly Household Energy Consumption: Extracting, Visualizing and Interpreting Household Smart Meter Data	337
<i>Sam Borgeson, June A. Flora, Jungsuk Kwac, Chin-Woo Tan, and Ram Rajagopal</i>	
Defining HCI/UX Principles for Urban Environment	346
<i>Pavel Farkas</i>	
Participatory Explorations on a Location Based Urban Information System . . .	357
<i>Özge Genç, Damla Çay, and Asım Evren Yantaç</i>	

Diffusion of Feedback: Perceptions and Adoption of Devices in the Residential Market	368
<i>Beth Karlin, Angela Sanguinetti, Nora Davis, Kristen Bendanna, Kristen Holdsworth, Jessie Baker, David Kirkby, and Daniel Stokols</i>	
Design and Implementation of a Mobile Cloud Environmental Application for Riyadh City	380
<i>Heba Kurdi, Amani Al-Fayez, Anfal Al-Tuwaim, Hanan Al-Mohammadi, Mona Al-Mutairi, and Sarah Al-Kharji</i>	
How Do I Get to Room 3106?: Student Wayfinding Designs for Old Main at Wayne State University	390
<i>Judith A. Moldenhauer</i>	
A Practice on Wayfinding System Design with Service Design Thinking	400
<i>Jing Pan and Zhengsheng Yin</i>	
Hidden Presence: Sensing Occupancy and Extracting Value from Occupancy Data	412
<i>Larissa Suzuki, Peter Cooper, Theo Tryfonas, and George Oikonomou</i>	
Designing Apps for Tourists: A Case Study	425
<i>Virginia Tiradentes Souto, Caio Cristo, Maria Gabriela Araújo, and Lucas Santos</i>	
Designing the Driving Experience	
Designing for the Naturalistic Driving Experience	439
<i>Wanda Eugene, Jerone Dunbar, Alison Nolan, Juan E. Gilbert, and Renesha L. Hendrix</i>	
Exploring User Experience in the Wild: Facets of the Modern Car	450
<i>Dimitrios Gkouskos, Ingrid Pettersson, MariAnne Karlsson, and Fang Chen</i>	
Drivers and Automation: A Study About Cultural and Behavioral Influence in the Interaction with Driver Assistants.	462
<i>Rafael Cirino Gonçalves and Manuela Quaresma</i>	
Going on a Road-Trip with My Electric Car: Acceptance Criteria for Long-Distance-Use of Electric Vehicles	473
<i>Julian Halbey, Sylvia Kowalewski, and Martina Ziefle</i>	
A Study on a Split-View Navigation System	485
<i>Jongsung Lee, Heewon Lee, and Sung Woo Kim</i>	

What Travelers Want: An Investigation into User Needs and User Wants on Display	496
<i>Tingyi S. Lin and Chia-Nien Chang</i>	
Head Up Display in Automotive: A New Reality for the Driver	505
<i>Annie Pauzie</i>	
What Are the Expectations of Users of an Adaptive Recommendation Service Which Aims to Reduce Driver Distraction?.	517
<i>Nadine Walter, Benjamin Kaplan, Carmen Wettemann, Tobias Altmüller, and Klaus Bengler</i>	
Cross Cultural Comparison of Users’ Barge-in with the In-Vehicle Speech System	529
<i>Peggy Wang, Ute Winter, and Timothy Grost</i>	
 Designing the Healthcare Patient’s Experience	
PostureMonitor: Real-Time IMU Wearable Technology to Foster Poise and Health	543
<i>Fatemeh Abyarjoo, Nonnarit O-Larnnithipong, Sudarat Tangnimitchok, Francisco Ortega, and Armando Barreto</i>	
Robot-Era Project: Preliminary Results on the System Usability	553
<i>Roberta Bevilacqua, Elisa Felici, Fiorella Marcellini, Sebastian Glende, Susann Klemcke, Isabel Conrad, Raffaele Esposito, Filippo Cavallo, and Paolo Dario</i>	
User Experience Research on the Rehabilitation System of Speech-Impaired Children: A Case Study on Speech Training Product. . . .	562
<i>Wenyi Cai, Jun Liu, Qiang Liu, and Ting Han</i>	
“Keep What You’ve Earned”: Encouraging Sailors to Drink Responsibly. . . .	575
<i>Kristina Cook, Erin Brennan, Colleen Gray, and Teha Kennard</i>	
The Use of Generative Techniques in Co-design of mHealth Technology and Healthcare Services for COPD Patients	587
<i>Anita Das, Silje Bøthun, Jarl Reitan, and Yngve Dahl</i>	
Human-Computer Interaction in Bed	596
<i>Gustavo Desouza and Ernesto Filgueiras</i>	
Designing an Interface Agent-Based Architecture for Creating a Mobile System of Medical Care.	606
<i>Ariel Escobar Endara and Carlos José Pereira de Lucena</i>	

A Study of Conversation Support System Between the Elderly Person and Young Adults by Using Facial Expression Analysis	616
<i>Miyuki Iwamoto, Noriaki Kuwahara, and Kazunari Morimoto</i>	
The Turkish Central Doctor Rendezvous System Under Spotlight: A User Study with Turkish Senior Users	628
<i>Edibe Betül Karbay and Kerem Rızvanoğlu</i>	
Evaluation of Users Acceptance of a Digital Medicine Fact Sheet: Findings from a Focus Group	638
<i>Amélia Lageiro, Catarina Lisboa, and Emilia Duarte</i>	
Designing for the Healthcare Professional’s Experience	
An Internet of Things Application with an Accessible Interface for Remote Monitoring Patients	651
<i>Chrystinne Oliveira Fernandes and Carlos José Pereira de Lucena</i>	
Three-Dimensional Models and Simulation Tools Enabling Interaction and Immersion in Medical Education.	662
<i>Soeli T. Fiorini, Leonardo Frajhof, Bruno Alvares de Azevedo, Jorge R. Lopes dos Santos, Heron Werner, Alberto Raposo, and Carlos José Pereira de Lucena</i>	
MedData: A Mobile Application Designed for Medical Teams to Monitor Clinical Evolution of Inpatient in ICU Context	672
<i>Carlos Alberto Pereira de Lucena, Cláudia Renata Mont’Alvão, and Bruno Alvares de Azevedo</i>	
A Usability Study of a Gesture Recognition System Applied During the Surgical Procedures.	682
<i>Antonio Opromolla, Valentina Volpi, Andrea Ingrosso, Stefano Fabri, Claudia Rapuano, Delia Passalacqua, and Carlo Maria Medaglia</i>	
A Novel User-Specific Wearable Controller for Surgical Robots	693
<i>Carmen C.Y. Poon, Esther Y.Y. Leung, Ka Chun Lau, Billy H.K. Leung, Yali L. Zheng, Philip W.Y. Chiu, and Yeung Yam</i>	
Author Index	703