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Human-Computer Interaction – INTERACT 2015

15th IFIP TC 13 International Conference
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Proceedings, Part IV

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Foreword

The 15th IFIP TC.13 International Conference on Human–Computer Interaction, INTERACT 2015, was held during September 14–18, 2015, in Bamberg, Germany, organized by the University of Bamberg. The city of Bamberg is proud of its more than 1,000-year-old center. It has more than 2,400 historically listed buildings and became a UNESCO World Cultural Heritage Site in 1993. With 70,000 inhabitants, Bamberg is a small town in the heart of Europe.

The theme of the 2015 edition was “Connection, tradition, innovation.” In its relatively short history, the human–computer interaction (HCI) area has experienced impressive development. Theories, methodologies, procedures, guidelines, and tools have been progressively proposed, discussed, tested, and frequently adopted by academia and industry. The protagonists of this development created in a short period of time a scientific and technological tradition able to produce high-quality interaction systems. However, the evolution of the computers and networks pose new challenges to all stakeholders. Innovation, based on tradition, is the only way to face these challenges, even if innovation often requires breaking the tradition. In order to make this process possible, INTERACT 2015 provides diverse and abundant connection opportunities. A multidisciplinary approach is characteristic of the HCI field. INTERACT 2015 aimed to connect all the matters able to contribute to the quality of the future interactions among people and computers.

The series of INTERACT international conferences (started in 1984) is supported by Technical Committee 13 on Human–Computer Interaction of the International Federation for Information Processing (IFIP). This committee aims at developing the science and technology of the interaction between humans and computing devices.

IFIP was created in 1960 under the auspices of UNESCO with the aim of balancing worldwide the development of computer technology and Science. Technical Committee 13 is fully conscious of the social importance of information and communication technologies for our world, today and in the future. Therefore, INTERACT 2015 made efforts to attract and host people from all over the world, and to pay attention to the constraints imposed on HCI by differences in culture, language, technological availability, physical, as well as sensory and cognitive differences, among other dimensions of interest.

INTERACT 2015 gathered a stimulating collection of research papers and reports of development and practice that acknowledge the diverse disciplines, abilities, cultures, and societies, and that address all the aspects of HCI, including technical, human, social, and esthetic.

Like its predecessors, INTERACT 2015 aimed to be an exciting forum for communication with people of similar interests, to foster collaboration and learning. Being by nature a multidisciplinary field, HCI requires interaction and discussion among diverse people with different interests and backgrounds. INTERACT 2015 was directed both to the academic and industrial world, always highlighting the latest developments

in the discipline of HCI and its current applications. Experienced HCI researchers and professionals, as well as newcomers to the HCI field, interested in the design or evaluation of interactive software, development of new technologies for interaction, and research on general theories of HCI met in Bamberg.

We thank all the authors who chose INTERACT 2015 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.

We received 651 submissions. Of these, the following were accepted: 93 full research papers; 74 short research papers; eight demos; 30 interactive posters; four organizational overviews; three panels; six tutorials; 11 workshops; and 13 doctoral consortium papers.

The acceptance rate for the full papers was 29.6 % and 26.8 % for short papers.

In order to select the highest-quality contributions, an elaborate review system was organized including shepherding of 38 full research papers that went through a second and sometimes a third round of review. That process was primarily handled by the 32 meta-reviewers who willingly assisted and ensured the selection of high-quality full research papers to be presented at INTERACT 2015.

The final decision on acceptance or rejection of papers was taken in a plenary Program Committee meeting held in Tampere (Finland) in February 2015, aimed to discuss a consistent set of criteria to deal with inevitable differences among the large number of reviewers who were recruited and supported by the meta-reviewers. The technical program chairs and the track chairs, the general chairs, and the members of IFIP Technical Committee 13 participated in the meeting.

Special thanks must go to the track chairs and all the reviewers, who put in an enormous amount of work to ensure that quality criteria were maintained throughout the selection process. We also want to acknowledge the excellent work of the co-chairs of the different sections of the conference and the meta-reviewers of the full research paper track.

We also thank the members of the Organizing Committee, especially Mirko Fetter, local organization chair, who provided us with all the necessary resources to facilitate our work. Finally, we wish to express a special thank you to the proceedings publication chair, Marco Winckler, who did extraordinary work to put this volume together.

September 2015

Tom Gross
Julio Abascal
Simone Barbosa
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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 of 37 national societies and nine 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. From 2017 the conference series will become an annual conference.

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 worldwide.

The main orientation is toward users, especially 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. 2007 IFIP TC 13 also launched an accessibility award to recognize an outstanding contribution with international impact in the field of accessibility for disabled users in HCI. In 2013, IFIP TC 13 launched the Interaction Design for International Development (IDID) Award, which recognizes the most outstanding contribution to the application of interactive systems for social and economic development of people in

developing countries. Since the process to decide the award takes place after papers are submitted for publication, the awards are not identified in the proceedings.

IFIP TC 13 also recognizes pioneers in the area of HCI. An IFIP TC 13 pioneer is one who, through active participation in IFIP Technical Committees or related IFIP groups, has made outstanding contributions to the educational, theoretical, technical, commercial, or professional aspects of analysis, design, construction, evaluation, and use of interactive systems. IFIP TC 13 pioneers are appointed annually and awards are handed over at the INTERACT conference.

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 here.

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 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) 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.

WG13.8 (Interaction Design and International Development) are currently working to reformulate their 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.

New Working Groups are formed as areas of significance to HCI arise. Further information is available on the IFIP TC13 website: <http://ifip-tc13.org/>

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Contents – Part IV

Tangible and Tactile Interaction

Child or Adult? Inferring Smartphone Users' Age Group from Touch Measurements Alone	1
<i>Radu-Daniel Vatavu, Lisa Anthony, and Quincy Brown</i>	
Designing of 2D Illusory Tactile Feedback for Hand-Held Tablets	10
<i>Youngsun Kim, Jaedong Lee, and Gerard J. Kim</i>	
Need for Touch in Human Space Exploration: Towards the Design of a Morphing Haptic Glove – ExoSkin	18
<i>Sue Ann Seah, Marianna Obrist, Anne Roudaut, and Sriram Subramanian</i>	
Tactile Communication in Extreme Contexts: Exploring the Design Space Through Kiteboarding	37
<i>André Schmidt, Mads Kleemann, Timothy Merritt, and Ted Selker</i>	
Glass+Skin: An Empirical Evaluation of the Added Value of Finger Identification to Basic Single-Touch Interaction on Touch Screens	55
<i>Quentin Roy, Yves Guiard, Gilles Bailly, Éric Lecolinet, and Olivier Rioul</i>	
Physical Playlist: Bringing Back the Mix-Tape	72
<i>Daniel Burnett, Adrian Gradinar, Joel Porter, Mike Stead, Paul Coulton, and Ian Forrester</i>	
Tangible Voting: A Technique for Interacting with Group Choices on a Tangible Tabletop	79
<i>Valérie Maquil, Eric Tobias, and Thibaud Latour</i>	

Tools for Design

Dico: A Conceptual Model to Support the Design and Evaluation of Advanced Search Features for Exploratory Search	87
<i>Emanuel Felipe Duarte, Edson Oliveira Jr., Filipe Roseiro Cogo, and Roberto Pereira</i>	
Revealing Differences in Designers' and Users' Perspectives: A Tool-Supported Process for Visual Attention Prediction for Designing HMIs for Maritime Monitoring Tasks	105
<i>Sebastian Feuerstack and Bertram Wortelen</i>	

Worth-Centered Design in Practice: Lessons from Experience and Research Agenda	123
<i>Fatoumata Camara and Gaëlle Calvary</i>	

Touch and Haptic

Actuated Shear: Enabling Haptic Feedback on Rich Touch Interfaces	140
<i>Bernhard Maurer, Roland Buchner, Martin Murer, and Manfred Tscheligi</i>	

Characterizing the Influence of Motion Parameters on Performance When Acquiring Moving Targets	148
<i>Alexandre Kouyoumdjian, Nicolas Férey, Patrick Bourdot, and Stéphane Huot</i>	

Comparing Fatigue When Using Large Horizontal and Vertical Multi-touch Interaction Displays	156
<i>Shiroq Al-Megren, Ahmed Kharrufa, Jonathan Hook, Amey Holden, Selina Sutton, and Patrick Olivier</i>	

Touch, Movement and Vibration: User Perception of Vibrotactile Feedback for Touch and Mid-Air Gestures	165
<i>Christian Schönauer, Annette Mossel, Ionuț-Alexandru Zaiți, and Radu-Daniel Vatavu</i>	

Where to Start? Exploring the Efficiency of Translation Movements on Multitouch Devices	173
<i>Quan Nguyen and Michael Kipp</i>	

User and Task Modelling

Enhanced Task Modelling for Systematic Identification and Explicit Representation of Human Errors	192
<i>Racim Fahssi, Célia Martinie, and Philippe Palanque</i>	

EvolutionWorks: Towards Improved Visualization of Citation Networks	213
<i>Jason Wilkins, Jaakko Järvi, Ajit Jain, Gaurav Kejriwal, Andruid Kerne, and Vijay Gumudavelly</i>	

Quantifying Object- and Command-Oriented Interaction.	231
<i>Alix Goguey, Julie Wagner, and Géry Casiez</i>	

Users, Bystanders and Agents: Participation Roles in Human-Agent Interaction	240
<i>Antonia L. Krummheuer</i>	

Visualization

- Augmented Happiness: Simple Color Changes Influence Users’
Conceptual Choices 248
*Diana Löffler, Wolfgang Paier, Takashi Toriizuka, Mio Ikeda,
and Jörn Hurtienne*
- Investigating Representation Alternatives for Communicating
Uncertainty to Non-experts 256
Miriam Greis, Thorsten Ohler, Niels Henze, and Albrecht Schmidt
- Proxemic Flow: Dynamic Peripheral Floor Visualizations for Revealing
and Mediating Large Surface Interactions 264
*Jo Vermeulen, Kris Luyten, Karin Coninx, Nicolai Marquardt,
and Jon Bird*
- Self-Actuated Displays for Vertical Surfaces 282
*Patrick Bader, Valentin Schwind, Norman Pohl, Niels Henze,
Katrin Wolf, Stefan Schneegass, and Albrecht Schmidt*

Visualization 3D

- 3D-HUDD – Developing a Prototyping Tool for 3D Head-Up Displays 300
*Nora Broy, Matthias Nefzger, Florian Alt, Mariam Hassib,
and Albrecht Schmidt*
- Design and Evaluation of Mirror Interface MIOSS to Overlay Remote
3D Spaces 319
*Ryo Ishii, Shiro Ozawa, Akira Kojima, Kazuhiro Otsuka, Yuki Hayashi,
and Yukiko I. Nakano*
- Improving Spatial Awareness for Human Trajectory Visualization
in Space-Time Cubes 327
Tiago Gonçalves, Ana Paula Afonso, and Bruno Martins
- MStoryG: Exploring Serendipitous Storytelling Within High Anxiety
Public Spaces 335
*Clinton Jorge, Valentina Nisi, Julian Hanna, Nuno Nunes,
Miguel Caldeira, and Amanda Marinho*

Visualization in Virtual Spaces

- Estimating Visual Comfort in Stereoscopic Displays
Using Electroencephalography: A Proof-of-Concept 354
Jérémy Frey, Aurélien Appriou, Fabien Lotte, and Martin Hachet

Exploring the Use of Virtual Environments in an Industrial Site Design Process	363
<i>Ashley Colley, Jani Väyrynen, and Jonna Häkkinen</i>	
Pointing in Spatial Augmented Reality from 2D Pointing Devices.	381
<i>Renaud Gervais, Jérémy Frey, and Martin Hachet</i>	
The Comparison of Performance, Efficiency, and Task Solution Strategies in Real, Virtual and Dual Reality Environments	390
<i>Frederic Raber, Antonio Krüger, and Gerrit Kahl</i>	
Wearable Computing	
Hard-to-Get-at Data from Difficult-to-Access Users	409
<i>Bob Fields, Andy Bardill, Lisa Marzano, and Kate Herd</i>	
Oh, What a Night! Effortless Sleep Monitoring at Home	417
<i>Bert Vandenberghe and David Geerts</i>	
SKInteract: An On-body Interaction System Based on Skin-Texture Recognition	425
<i>Manuel Prätorius, Aaron Scherzinger, and Klaus Hinrichs</i>	
Towards a Model of Virtual Proxemics for Wearables	433
<i>Junia Anacleto and Sidney Fels</i>	
ZENse - Supporting Everyday Emotional Reflection	448
<i>Christian Löw, Chalid Gad-El-Hak, Roman Ganhör, and Hilda Tellioglu</i>	
Demonstrations	
BlurtLine: A Design Exploration to Support Children with ADHD in Classrooms.	456
<i>Dorothe Smit and Saskia Bakker</i>	
Cooperation in Real-Time Using a Virtual Environment.	461
<i>Máté Köles, Károly Hercegfı, Balázs Péter Hámornik, Emma Lógó, Bálint Szabó, and Anita Komlódi</i>	
Diving into the Data Ocean	465
<i>Dieter Meiller</i>	
ETA Wizard App: Make Design and Evaluation of Accessible Electronic Travel Aids Easy	469
<i>Limin Zeng, Gerhard Weber, and Alexander Fickel</i>	

Generating Narratives from Personal Digital Data: Using Sentiment, Themes, and Named Entities to Construct Stories	473
<i>Elaine Farrow, Thomas Dickinson, and Matthew P. Aylett</i>	
Interactive Light Feedback: Illuminating Above-Device Gesture Interfaces . . .	478
<i>Euan Freeman, Stephen Brewster, and Vuokko Lantz</i>	
StoreAnt: A System to Support Finding Collaborative Systems Evaluation Methods.	482
<i>Marcella Leandro Costa de Souza, Lidia Silva Ferreira, Raquel Oliveira Prates, and Marília Lyra Bergamo</i>	
TUIOFX—Toolkit Support for the Development of JavaFX Applications for Interactive Tabletops	486
<i>Mirko Fetter and David Bimamisa</i>	
 Interactive Posters	
“I Was Here”: Enabling Tourists to Leave Digital Graffiti or Marks on Historic Landmarks.	490
<i>Matjaž Kljun and Klen Čopič Pucihar</i>	
A Hybrid Approach for Visualizing Spatial and Non-spatial Data Types of Embedded Systems	495
<i>Ragaad AlTarawneh, Shah Rukh Humayoun, and Achim Ebert</i>	
A Multi-modal System for Public Speaking: Pilot Study on Evaluation of Real-Time Feedback	499
<i>Fiona Dermody, Alistair Sutherland, and Margaret Farren</i>	
A Study on How to Express Non-manual Markers in the Electronic Dictionary of Japanese Sign Language.	502
<i>Mina Terauchi and Yuji Nagashima</i>	
Applying “Out of Body” Vibrotactile Illusion to Two-Finger Interaction for Perception of Object Dynamics	506
<i>Jaedong Lee, Youngsun Kim, and Gerard J. Kim</i>	
Designing IDA - An Intelligent Driver Assistant for Smart City Parking in Singapore.	510
<i>Andreea I. Niculescu, Mei Quin Lim, Seno A. Wibowo, Kheng Hui Yeo, Boon Pang Lim, Michael Popow, Dan Chia, and Rafael E. Banchs</i>	
Development of Usability-Criteria for the Selection Process of Document Management Systems	514
<i>Antje Heinicke, Christina Bröhl, Ioannis Dokas, Katrin Walbaum, Jennifer Bützler, and Christopher Schlick</i>	

Digital Co-design Applied to Healthcare Environments: A Comparative Study	518
<i>Lei Shi, James MacKrill, Elisavet Dimitrokali, Carolyn Dawson, and Rebecca Cain</i>	
Dual Camera Magic Lens for Handheld AR Sketching	523
<i>Klen Čopič Pucihar, Jens Grubert, and Matjaž Kljun</i>	
Enabling Naturalness and Humanness in Mobile Voice Assistants	528
<i>Sanjay Ghosh and Jatin Pherwani</i>	
Estimation of Radius of Curvature of Lumbar Spine Using Bending Sensor for Low Back Pain Prevention	533
<i>Takakuni Iituka, Kyoko Shibata, and Yoshio Inoue</i>	
Evaluation of Dispatcher Requirements on Automated Customer Feedback in Public Transport	537
<i>Cindy Mayas, Stephan Hörold, Anselmo Stelzer, Frank Englert, and Heidi Krömker</i>	
Experiences of Teaching HCI to a Multidisciplinary Cohort of Computing and Design Students	542
<i>Omar Mubin, Abdullah Al Mahmud, and Suleman Shahid</i>	
Experiencing a Home Energy Management System: Finding Opportunities for Design	546
<i>Bingxin Ni, Abdullah Al Mahmud, and David V. Keyson</i>	
Eye Strain from Switching Focus in Optical See-Through Displays	550
<i>Jaeun Yu and Gerard J. Kim</i>	
First Impression Matters: Exploring the Mediating Effect of Previous Experience on the Perception of Beauty and Usability	555
<i>Suleman Shahid and Omar Mubin</i>	
Informing Costumers via Interactive Shelves	559
<i>Peter Rogelj</i>	
Intelligent Ankle-Foot Orthosis by Energy Regeneration for Controllable Damping During Gait in Real Time.	563
<i>Kyoko Shibata, Yoshio Inoue, and Hironobu Satoh</i>	
Interactive Check System for Facilitating Self-awareness of Dorm Students in Upper Secondary Education	569
<i>Shigenori Akamatsu, Masanobu Yoshida, Hironobu Satoh, and Takumi Yamaguchi</i>	

Interactive Toys in the Home: A Parents Perspective	573
<i>Omar Mubin, Duncan Rutishauser, Mauricio Novoa, Derek Wainohu, and Suleman Shahid</i>	
Learning Lessons from Controlled Studies to Investigate Users’ Resilience Strategies	578
<i>Jonathan Day, George Buchanan, and Stephann Makri</i>	
LightWatch: A Wearable Light Display for Personal Exertion.	582
<i>Jutta Fortmann, Janko Timmermann, Bengt Lüers, Marius Wybrands, Wilko Heuten, and Susanne Boll</i>	
Perceptive Media – Adaptive Storytelling for Digital Broadcast	586
<i>Adrian Gradinar, Daniel Burnett, Paul Coulton, Ian Forrester, Matt Watkins, Tom Scutt, and Emma Murphy</i>	
Redesigning Interaction in CODES	590
<i>Elisa Leo de Oliveira, Evandro Manara Miletto, and Luciano Vargas Flores</i>	
Small Community Size of Private SNS for Bonding Relationship: Development of a Research Framework	594
<i>Hyeonjung Ahn and Sangwon Lee</i>	
Sushi Train Interface: Passive and Interactive Information Sharing	599
<i>Tomomi Takashina and Yuji Kokumai</i>	
Tangible Microscope with Intuitive Stage Control Interface	603
<i>Tomomi Takashina, Hitoshi Kawai, and Yuji Kokumai</i>	
Touch Skin: Proprioceptive Input for Small Screen Devices	607
<i>Changhyeon Lee, Jaedong Lee, and Gerard J. Kim</i>	
Towards In-Air Gesture Control of Household Appliances with Limited Displays	611
<i>Euan Freeman, Stephen Brewster, and Vuokko Lantz</i>	
Video-Conferencing in E-commerce Website: Effect on Perceived Service Quality and Trust.	616
<i>Suleman Shahid, Abdullah Al Mahmud, and Omar Mubin</i>	

Organizational Overview

Contextual Interaction Design Research: <i>Enabling HCI</i>	621
<i>Martin Murer, Alexander Meschtscherjakov, Verena Fuchsberger, Manuel Giuliani, Katja Neureiter, Christiane Moser, Ilhan Aslan, and Manfred Tscheligi</i>	

Organisational Overview: Institute for Design and Assessment of Technology, Vienna University of Technology (TU Wien)	624
<i>Geraldine Fitzpatrick, H. Tellioglu, W. Zagler, M. Pohl, F. Güldenpfennig, O. Hödl, R. Ganhör, P. Mayer, and C. Frauenberger</i>	
Technology Experience Research: A Framework for Experience Oriented Technology Development.	626
<i>Manfred Tscheligi, Sebastian Egger, Peter Fröhlich, Cristina Olaverri-Monreal, and Georg Regal</i>	
Usability Testing Practice at MIMOS Usability Lab	628
<i>Norfarhana Abdollah, Ashok Sivaji, and Masitah Ghazali</i>	
Panels	
Design, Innovation and Respect in the Global South	630
<i>Jose Abdelnour-Nocera, Chris Csikszentmihályi, Torkil Clemmensen, and Christian Sturm</i>	
Interaction and Humans in Internet of Things	633
<i>Markku Turunen, Daniel Sonntag, Klaus-Peter Engelbrecht, Thomas Olsson, Dirk Schnelle-Walka, and Andrés Lucero</i>	
Role of Conferences in Shaping the Field of HCI	637
<i>Jan Gulliksen, Simone Diniz Junqueira Barbosa, Anirudha Joshi, Shaun Lawson, and Philippe Palanque</i>	
Tutorials	
Design and Rapid Evaluation of Interactive Systems in Theory and Practice	640
<i>Jochen Denzinger and Tom Gross</i>	
How to Design and Build New Musical Interfaces	642
<i>Sidney Fels and Michael Lyons</i>	
Sketching User Experiences Tutorial	644
<i>Nicolai Marquardt</i>	
Tutorial on Human Computer Interaction for Third Places - THCI-3P	647
<i>Junia Anacleto, Sidney Fels, and Roberto Calderon</i>	
Tutorial: Modern Regression Techniques for HCI Researchers	651
<i>Martin Schmettow</i>	
Working with Child Participants in Interaction Design.	655
<i>Janet C. Read</i>	

Workshops

Fostering Smart Energy Applications 657
Masood Masoodian, Elisabeth André, and Thomas Rist

Human Work Interaction Design (HWID): Design for Challenging
 Work Environments. 659
*Verena Fuchsberger, Martin Murer, Manfred Tscheligi,
 José Abdelnour-Nocera, Pedro Campos, Frederica Gonçalves,
 and Barbara Rita Barricelli*

IFIP WG 13.2 Workshop on User Experience and User-Centered
 Development Processes 661
Marco Winckler, Regina Bernhaupt, Peter Forbrig, and Stefan Sauer

IFIP WG 13.5 Workshop on Resilience, Reliability, Safety and Human
 Error in System Development. 663
*Chris Johnson, Mike Feary, Célia Martinie, Phil Palanque,
 and Regina Peldszus*

Learning Beyond the Classroom: For and About Older
 and Disabled People 665
Gerhard Weber, Christopher Power, Helen Petrie, and Jenny Darzentas

Mediation and Meaning in HCI 667
*Susanne Bødker, Olav W. Bertelsen, Liam Bannon, Clarisse de Souza,
 Simone Barbosa, and Raquel Prates*

Methods for Undertaking Research on Technology with Older
 and Disabled People 669
Helen Petrie, Blathin Gallagher, and Jenny Darzentas

Social Image Research in the Age of Selfies. 671
Casey Dugan and Sven Laumer

The Landscape of UX Requirements Practices 673
*Gregorio Convertino, Nancy Frishberg, Jettie Hoonhout,
 Rosa Lanzilotti, Marta Kristín Lárusdóttir, and Effie Lai-Chong Law*

Workshop on Designing Interaction and Visualization for Mobile
 Applications (DIViM 2015) 675
*Shah Rukh Humayoun, Achim Ebert, Steffen Hess,
 and Gerrit van der Veer*

Workshop on Interactivity in Healthcare Systems (IHS). 677
Vicki Hanson, Gemma Webster, and Matt Dennis

Author Index 679