

Commenced Publication in 1973

Founding and Former Series Editors:

Gerhard Goos, Juris Hartmanis, and Jan van Leeuwen

Editorial Board

David Hutchison

Lancaster University, 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, Switzerland

John C. Mitchell

Stanford University, CA, USA

Moni Naor

Weizmann Institute of Science, Rehovot, Israel

Oscar Nierstrasz

University of Bern, Switzerland

C. Pandu Rangan

Indian Institute of Technology, Madras, India

Bernhard Steffen

University of Dortmund, Germany

Madhu Sudan

Massachusetts Institute of Technology, MA, USA

Demetri Terzopoulos

University of California, Los Angeles, CA, USA

Doug Tygar

University of California, Berkeley, CA, USA

Moshe Y. Vardi

Rice University, Houston, TX, USA

Gerhard Weikum

Max-Planck Institute of Computer Science, Saarbruecken, Germany

Julie A. Jacko (Ed.)

Human-Computer Interaction

Interaction Platforms and Techniques

12th International Conference, HCI International 2007
Beijing, China, July 2007
Proceedings, Part II



Springer

Volume Editor

Julie A. Jacko

Georgia Institute of Technology

and Emory University School of Medicine

901 Atlantic Drive, Suite 4100, Atlanta, GA 30332-0477, USA

E-mail: jacko@hsi.gatech.edu

Library of Congress Control Number: 2007929780

CR Subject Classification (1998): H.5.2, H.5.3, H.3-5, C.2, I.3, D.2, F.3, K.4.2

LNCS Sublibrary: SL 2 – Programming and Software Engineering

ISSN 0302-9743

ISBN-10 3-540-73106-7 Springer Berlin Heidelberg New York

ISBN-13 978-3-540-73106-1 Springer Berlin Heidelberg New York

This work is subject to copyright. All rights are reserved, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, re-use of illustrations, recitation, broadcasting, reproduction on microfilms or in any other way, and storage in data banks. Duplication of this publication or parts thereof is permitted only under the provisions of the German Copyright Law of September 9, 1965, in its current version, and permission for use must always be obtained from Springer. Violations are liable to prosecution under the German Copyright Law.

Springer is a part of Springer Science+Business Media

springer.com

© Springer-Verlag Berlin Heidelberg 2007

Printed in Germany

Typesetting: Camera-ready by author, data conversion by Scientific Publishing Services, Chennai, India

Printed on acid-free paper SPIN: 12077953 06/3180 5 4 3 2 1 0

Foreword

The 12th International Conference on Human-Computer Interaction, HCI International 2007, was held in Beijing, P.R. China, 22-27 July 2007, jointly with the Symposium on Human Interface (Japan) 2007, the 7th International Conference on Engineering Psychology and Cognitive Ergonomics, the 4th International Conference on Universal Access in Human-Computer Interaction, the 2nd International Conference on Virtual Reality, the 2nd International Conference on Usability and Internationalization, the 2nd International Conference on Online Communities and Social Computing, the 3rd International Conference on Augmented Cognition, and the 1st International Conference on Digital Human Modeling.

A total of 3403 individuals from academia, research institutes, industry and governmental agencies from 76 countries submitted contributions, and 1681 papers, judged to be of high scientific quality, were included in the program. These papers address the latest research and development efforts and highlight the human aspects of design and use of computing systems. The papers accepted for presentation 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.

This volume, edited by Julie A. Jacko, contains papers in the thematic area of Human-Computer Interaction, addressing the following major topics:

- Graphical User Interfaces and Visualization
- Mobile Devices and Mobile Interaction
- Virtual Environments and 3D Interaction
- Ubiquitous Interaction
- Emerging Interactive Technologies

The remaining volumes of the HCI International 2007 proceedings are:

- Volume 1, LNCS 4550, Interaction Design and Usability, edited by Julie A. Jacko
- Volume 3, LNCS 4552, HCI Intelligent Multimodal Interaction Environments, edited by Julie A. Jacko
- Volume 4, LNCS 4553, HCI Applications and Services, edited by Julie A. Jacko
- Volume 5, LNCS 4554, Coping with Diversity in Universal Access, edited by Constantine Stephanidis
- Volume 6, LNCS 4555, Universal Access to Ambient Interaction, edited by Constantine Stephanidis
- Volume 7, LNCS 4556, Universal Access to Applications and Services, edited by Constantine Stephanidis
- Volume 8, LNCS 4557, Methods, Techniques and Tools in Information Design, edited by Michael J. Smith and Gavriel Salvendy
- Volume 9, LNCS 4558, Interacting in Information Environments, edited by Michael J. Smith and Gavriel Salvendy
- Volume 10, LNCS 4559, HCI and Culture, edited by Nuray Aykin
- Volume 11, LNCS 4560, Global and Local User Interfaces, edited by Nuray Aykin
- Volume 12, LNCS 4561, Digital Human Modeling, edited by Vincent G. Duffy

- Volume 13, LNAI 4562, Engineering Psychology and Cognitive Ergonomics, edited by Don Harris
- Volume 14, LNCS 4563, Virtual Reality, edited by Randall Shumaker
- Volume 15, LNCS 4564, Online Communities and Social Computing, edited by Douglas Schuler
- Volume 16, LNAI 4565, Foundations of Augmented Cognition 3rd Edition, edited by Dylan D. Schmorrow and Leah M. Reeves
- Volume 17, LNCS 4566, Ergonomics and Health Aspects of Work with Computers, edited by Marvin J. Dainoff

I would like to thank the Program Chairs and the members of the Program Boards of all Thematic Areas, listed below, for their contribution to the highest scientific quality and the overall success of the HCI International 2007 Conference.

Ergonomics and Health Aspects of Work with Computers

Program Chair: Marvin J. Dainoff

Arne Aaras, Norway
Pascale Carayon, USA
Barbara G.F. Cohen, USA
Wolfgang Friesdorf, Germany
Martin Helander, Singapore
Ben-Tzion Karsh, USA
Waldemar Karwowski, USA
Peter Kern, Germany
Danuta Koradecka, Poland
Kari Lindstrom, Finland

Holger Luczak, Germany
Aura C. Matias, Philippines
Kyung (Ken) Park, Korea
Michelle Robertson, USA
Steven L. Sauter, USA
Dominique L. Scapin, France
Michael J. Smith, USA
Naomi Swanson, USA
Peter Vink, The Netherlands
John Wilson, UK

Human Interface and the Management of Information

Program Chair: Michael J. Smith

Lajos Balint, Hungary
Gunilla Bradley, Sweden
Hans-Jörg Bullinger, Germany
Alan H.S. Chan, Hong Kong
Klaus-Peter Fähnrich, Germany
Michitaka Hirose, Japan
Yoshinori Horie, Japan
Richard Koubek, USA
Yasufumi Kume, Japan
Mark Lehto, USA
Jiye Mao, P.R. China
Fiona Nah, USA
Shogo Nishida, Japan
Leszek Pacholski, Poland

Robert Proctor, USA
Youngho Rhee, Korea
Anxo Cereijo Roibás, UK
Francois Sainfort, USA
Katsunori Shimohara, Japan
Tsutomu Tabe, Japan
Alvaro Taveira, USA
Kim-Phuong L. Vu, USA
Tomio Watanabe, Japan
Sakae Yamamoto, Japan
Hidekazu Yoshikawa, Japan
Li Zheng, P.R. China
Bernhard Zimolong, Germany

Human-Computer Interaction

Program Chair: Julie A. Jacko

Sebastiano Bagnara, Italy
 Jianming Dong, USA
 John Eklund, Australia
 Xiaowen Fang, USA
 Sheue-Ling Hwang, Taiwan
 Yong Gu Ji, Korea
 Steven J. Landry, USA
 Jonathan Lazar, USA

V. Kathlene Leonard, USA
 Chang S. Nam, USA
 Anthony F. Norcio, USA
 Celestine A. Ntuen, USA
 P.L. Patrick Rau, P.R. China
 Andrew Sears, USA
 Holly Vitense, USA
 Wenli Zhu, P.R. China

Engineering Psychology and Cognitive Ergonomics

Program Chair: Don Harris

Kenneth R. Boff, USA
 Guy Boy, France
 Pietro Carlo Cacciabue, Italy
 Judy Edworthy, UK
 Erik Hollnagel, Sweden
 Kenji Itoh, Japan
 Peter G.A.M. Jorna, The Netherlands
 Kenneth R. Laughery, USA

Nicolas Marmaras, Greece
 David Morrison, Australia
 Sundaram Narayanan, USA
 Eduardo Salas, USA
 Dirk Schaefer, France
 Axel Schulte, Germany
 Neville A. Stanton, UK
 Andrew Thatcher, South Africa

Universal Access in Human-Computer Interaction

Program Chair: Constantine Stephanidis

Julio Abascal, Spain
 Ray Adams, UK
 Elizabeth Andre, Germany
 Margherita Antona, Greece
 Chieko Asakawa, Japan
 Christian Bühler, Germany
 Noelle Carbonell, France
 Jerzy Charytonowicz, Poland
 Pier Luigi Emiliani, Italy
 Michael Fairhurst, UK
 Gerhard Fischer, USA
 Jon Gunderson, USA
 Andreas Holzinger, Austria
 Arthur Karshmer, USA
 Simeon Keates, USA
 George Kouroupetroglou, Greece
 Jonathan Lazar, USA
 Seongil Lee, Korea

Zhengjie Liu, P.R. China
 Klaus Miesenberger, Austria
 John Mylopoulos, Canada
 Michael Pieper, Germany
 Angel Puerta, USA
 Anthony Savidis, Greece
 Andrew Sears, USA
 Ben Shneiderman, USA
 Christian Stry, Austria
 Hirotada Ueda, Japan
 Jean Vanderdonckt, Belgium
 Gregg Vanderheiden, USA
 Gerhard Weber, Germany
 Harald Weber, Germany
 Toshiki Yamaoka, Japan
 Mary Zajicek, UK
 Panayiotis Zaphiris, UK

Virtual Reality

Program Chair: Randall Shumaker

Terry Allard, USA
Pat Banerjee, USA
Robert S. Kennedy, USA
Heidi Kroemker, Germany
Ben Lawson, USA
Ming Lin, USA
Bowen Loftin, USA
Holger Luczak, Germany
Annie Luciani, France
Gordon Mair, UK

Ulrich Neumann, USA
Albert "Skip" Rizzo, USA
Lawrence Rosenblum, USA
Dylan Schmorrow, USA
Kay Stanney, USA
Susumu Tachi, Japan
John Wilson, UK
Wei Zhang, P.R. China
Michael Zyda, USA

Usability and Internationalization

Program Chair: Nuray Aykin

Genevieve Bell, USA
Alan Chan, Hong Kong
Apala Lahiri Chavan, India
Jori Clarke, USA
Pierre-Henri Dejean, France
Susan Dray, USA
Paul Fu, USA
Emilie Gould, Canada
Sung H. Han, South Korea
Veikko Ikonen, Finland
Richard Ishida, UK
Esin Kiris, USA
Tobias Komischke, Germany
Masaaki Kurosu, Japan
James R. Lewis, USA

Rungtai Lin, Taiwan
Aaron Marcus, USA
Allen E. Milewski, USA
Patrick O'Sullivan, Ireland
Girish V. Prabhu, India
Kerstin Röse, Germany
Eunice Ratna Sari, Indonesia
Supriya Singh, Australia
Serengul Smith, UK
Denise Spacinsky, USA
Christian Sturm, Mexico
Adi B. Tedjasaputra, Singapore
Myung Hwan Yun, South Korea
Chen Zhao, P.R. China

Online Communities and Social Computing

Program Chair: Douglas Schuler

Chadia Abras, USA
Lecia Barker, USA
Amy Bruckman, USA
Peter van den Besselaar,
The Netherlands
Peter Day, UK
Fiorella De Cindio, Italy
John Fung, P.R. China
Michael Gurstein, USA

Stefanie Lindstaedt, Austria
Diane Maloney-Krichmar, USA
Isaac Mao, P.R. China
Hideyuki Nakanishi, Japan
A. Ant Ozok, USA
Jennifer Preece, USA
Partha Pratim Sarker, Bangladesh
Gilson Schwartz, Brazil
Sergei Stafeev, Russia

Tom Horan, USA
 Piet Kommers, The Netherlands
 Jonathan Lazar, USA

F.F. Tusubira, Uganda
 Cheng-Yen Wang, Taiwan

Augmented Cognition

Program Chair: Dylan D. Schmorrow

Kenneth Boff, USA
 Joseph Cohn, USA
 Blair Dickson, UK
 Henry Girolamo, USA
 Gerald Edelman, USA
 Eric Horvitz, USA
 Wilhelm Kincses, Germany
 Amy Kruse, USA
 Lee Kollmorgen, USA
 Dennis McBride, USA

Jeffrey Morrison, USA
 Denise Nicholson, USA
 Dennis Proffitt, USA
 Harry Shum, P.R. China
 Kay Stanney, USA
 Roy Stripling, USA
 Michael Swetnam, USA
 Robert Taylor, UK
 John Wagner, USA

Digital Human Modeling

Program Chair: Vincent G. Duffy

Norm Badler, USA
 Heiner Bubb, Germany
 Don Chaffin, USA
 Kathryn Cormican, Ireland
 Andris Freivalds, USA
 Ravindra Goonetilleke, Hong Kong
 Anand Gramopadhye, USA
 Sung H. Han, South Korea
 Pheng Ann Heng, Hong Kong
 Dewen Jin, P.R. China
 Kang Li, USA

Zhizhong Li, P.R. China
 Lizhuang Ma, P.R. China
 Timo Maatta, Finland
 J. Mark Porter, UK
 Jim Potvin, Canada
 Jean-Pierre Verriest, France
 Zhaoqi Wang, P.R. China
 Xiugan Yuan, P.R. China
 Shao-Xiang Zhang, P.R. China
 Xudong Zhang, USA

In addition to the members of the Program Boards above, I also wish to thank the following volunteer external reviewers: Kelly Hale, David Kobus, Amy Kruse, Cali Fidopiastis and Karl Van Orden from the USA, Mark Neerinx and Marc Grootjen from the Netherlands, Wilhelm Kincses from Germany, Ganesh Bhutkar and Mathura Prasad from India, Frederick Li from the UK, and Dimitris Grammenos, Angeliki Kastrinaki, Iosif Klironomos, Alexandros Mourouzis, and Stavroula Ntoa from Greece.

This conference could not have been possible without the continuous support and advise of the Conference Scientific Advisor, Gavriel Salvendy, as well as the dedicated work and outstanding efforts of the Communications Chair and Editor of HCI International News, Abbas Moallem, and of the members of the Organizational Board

from P.R. China, Patrick Rau (Chair), Bo Chen, Xiaolan Fu, Zhibin Jiang, Congdong Li, Zhenjie Liu, Mowei Shen, Yuanchun Shi, Hui Su, Linyang Sun, Ming Po Tham, Ben Tsiang, Jian Wang, Guangyou Xu, Winnie Wanli Yang, Shuping Yi, Kan Zhang, and Wei Zho.

I would also like to thank for their contribution towards the organization of the HCI International 2007 Conference the members of the Human Computer Interaction Laboratory of ICS-FORTH, and in particular Margherita Antona, Maria Pitsoulaki, George Paparoulis, Maria Bouhli, Stavroula Ntoa and George Margetis.

Constantine Stephanidis
General Chair, HCI International 2007

HCI International 2009

The 13th International Conference on Human-Computer Interaction, HCI International 2009, will be held jointly with the affiliated Conferences in San Diego, California, USA, in the Town and Country Resort & Convention Center, 19-24 July 2009. 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. For more information, please visit the Conference website: <http://www.hcii2009.org/>

General Chair
Professor Constantine Stephanidis
ICS-FORTH and University of Crete
Heraklion, Crete, Greece
Email: program@hcii2009.org

Table of Contents

Part 1: Graphical User Interfaces and Visualization

When Does a Difference Make a Difference? A Snapshot on Global Icon Comprehensibility	3
<i>Sonja Auer and Ester Dick</i>	
Interface and Visualization Metaphors	13
<i>Vladimir Averbukh, Mikhail Bakhterev, Aleksandr Baydalin, Damir Ismagilov, and Polina Trushenkova</i>	
Displays Attentive to Unattended Regions: Presenting Information in a Peripheral-Vision-Friendly Way	23
<i>Mon-Chu Chen and Roberta L. Klatzky</i>	
Screen Layout on Color Search Task for Customized Product Color Combination Selection	32
<i>Cheih-Ying Chen, Ying-Jye Lee, Fong-Gong Wu, and Chi-Fu Su</i>	
Experimental Comparison of Adaptive vs. Static Thumbnail Displays . . .	41
<i>Pilsung Choe, Chulwoo Kim, Mark R. Lehto, and Jan Allebach</i>	
Improving Document Icon to Re-find Efficiently What You Need	49
<i>Changzhi Deng, Mingjun Zhou, Feng Tian, Guozhong Dai, and Hong'an Wang</i>	
The Design of a Computer Mouse Providing Three Degrees of Freedom	53
<i>Daniel Fallman, Anneli Mikaelsson, and Björn Yttergren</i>	
Facilitating Conditional Probability Problems with Visuals	63
<i>Vince Kellen, Susy Chan, and Xiaowen Fang</i>	
Interface Design Technique Considering Visual Cohesion-Rate by Object Unit	72
<i>Chang-Mog Lee and Ok-Bae Chang</i>	
A Color Adjustment Method for Automatic Seamless Image Blending	82
<i>Xianji Li and Dongho Kim</i>	
Interactive Visual Decision Tree Classification	92
<i>Yan Liu and Gavriel Salvendy</i>	
Anchored Maps: Visualization Techniques for Drawing Bipartite Graphs	106
<i>Kazuo Misue</i>	

ParSketch: A Sketch-Based Interface for a 2D Parametric Geometry Editor 115
Ferran Naya, Manuel Contero, Nuria Aleixos, and Pedro Company

The Effects of Various Visual Enhancements During Continuous Pursuit Tracking Tasks 125
Jaekyu Park and Sung Ha Park

Stylus Enhancement to Enrich Interaction with Computers 133
Yu Suzuki, Kazuo Misue, and Jiro Tanaka

An Experimental Evaluation of Information Visualization Techniques and Decision Style 143
WanAdilah Wan Adnan, NorLaila MdNoor, and Rasimah Aripin

Enhancing the Map Usage for Indoor Location-Aware Systems 151
Hui Wang, Henning Lenz, Andrei Szabo, Joachim Bamberger, and Uwe D. Hanebeck

Freehand Sketching Interfaces: Early Processing for Sketch Recognition 161
Shu-xia Wang, Man-tun Gao, and Le-hua Qi

Bilingual Mapping Visualizations as Tools for Chinese Language Acquisition 171
Jens Wissmann and G. Susanne Bahr

The Perceptual Eye View: A User-Defined Method for Information Visualization 181
Liang-Hong Wu and Ping-Yu Hsu

A Discriminative Color Quantization Depending on the Degree of Focus 191
Hong-Taek Yang and Doowon Paik

Getting Lost? Touch and You Will Find! The User-Centered Design Process of a Touch Screen 197
Bieke Zaman and Rogier Vermaut

CoConceptMap: A System for Collaborative Concept Mapping 207
Mingjun Zhou, Xiang Ao, Lishuang Xu, Feng Tian, and Guozhong Dai

Part 2: Mobile Devices and Mobile Interaction

User Expectations from Dictation on Mobile Devices 217
Santosh Basapur, Shuang Xu, Mark Ahlenius, and Young Seok Lee

Design Guidelines for PDA User Interfaces in the Context of Retail Sales Support	226
<i>Rainer Blum and Karim Khakzar</i>	
Influence of Culture on Attitude Towards Instant Messaging: Balance Between Awareness and Privacy	236
<i>Jinwei Cao and Andrea Everard</i>	
Usability Evaluation of Designed Image Code Interface for Mobile Computing Environment	241
<i>Cheolho Cheong, Dong-Chul Kim, and Tack-Don Han</i>	
The Effects of Gender Culture on Mobile Phone Icon Recognition	252
<i>Shunan Chung, Chiyi Chau, Xufan Hsu, and Jim Jiunde Lee</i>	
Designing for Mobile Devices: Requirements, Low-Fi Prototyping and Evaluation	260
<i>Marco de Sá and Luís Carriço</i>	
Playback of Rich Digital Books on Mobile Devices	270
<i>Carlos Duarte, Luís Carriço, and Fernando Morgado</i>	
Using Mobile Devices to Improve the Interactive Experience of Visitors in Art Museums	280
<i>J.A. Gallud, M. Lozano, R. Tesoriero, and V.M.R. Penichet</i>	
Model-Based Approaches to Quantifying the Usability of Mobile Phones	288
<i>Dong-Han Ham, Jeongyun Heo, Peter Fossick, William Wong, Sanghyun Park, Chiwon Song, and Mike Bradley</i>	
Accelerated Rendering of Vector Graphics on Mobile Devices	298
<i>Gaoqi He, Baogang Bai, Zhigeng Pan, and Xi Cheng</i>	
Pulling Digital Data from a Smart Object: Implementing the PullMe-Paradigm with a Mobile Phone	306
<i>Steve Hinske</i>	
Reading Performance of Chinese Text with Automatic Scrolling	311
<i>Yao-Hung Hsieh, Chiuhsiang Joe Lin, Hsiao-Ching Chen, Ting-Ting Huang, and James C. Chen</i>	
WAP Access Methods on Mobile Phones	320
<i>Zhang Hua and Cui Yoon Ping</i>	
Evaluation of Content Handling Methods for Tabletop Interface	326
<i>Ryoko Ishido, Keigo Kitahara, Tomoo Inoue, and Ken-ichi Okada</i>	
Interacting with a Tabletop Display Using a Camera Equipped Mobile Phone	336
<i>Seokhee Jeon, Gerard J. Kim, and Mark Billinghurst</i>	

Mobile Video Editor: Design and Evaluation	344
<i>Tero Jokela, Minna Karukka, and Kaj Mäkelä</i>	
Perceived Magnitude and Power Consumption of Vibration Feedback in Mobile Devices	354
<i>Jaehoon Jung and Seungmoon Choi</i>	
Application of a Universal Design Evaluation Index to Mobile Phones	364
<i>Miyeon Kim, Eui S. Jung, Sungjoon Park, Jongyong Nam, and Jaeho Choe</i>	
Understanding Camera Phone Imaging: Motivations, Behaviors and Meanings	374
<i>Grace Kim and Wilson Chan</i>	
The Design and Evaluation of a Diagonally Splitted Column to Improve Text Readability on a Small Screen	384
<i>Yeon-Ji Kim and Woohun Lee</i>	
Development of Interactive Logger for Understanding User's Interaction with Mobile Phone	394
<i>Daeop Kim and Kun-pyo Lee</i>	
An Improved Model to Evaluate Menu Hierarchies for Mobile Phones . . .	401
<i>Jeesu Lee and Doowon Paik</i>	
Support Zooming Tools for Mobile Devices	408
<i>Kwang B. Lee</i>	
Design of a Pen-Based Electric Diagram Editor Based on Context-Driven Constraint Multiset Grammars	418
<i>Sébastien Macé and Eric Anquetil</i>	
To Effective Multi-modal Design for Ringtones, Ringback Tones and Vibration of Cell Phones	429
<i>Taezoon Park, Wonil Hwang, and Gavriel Salvendy</i>	
Automatic Word Detection System for Document Image Using Mobile Devices	438
<i>Anjin Park and Keechul Jung</i>	
User Customization Methods Based on Mental Models: Modular UI Optimized for Customizing in Handheld Device	445
<i>Boeun Park, Scott Song, Joonhwan Kim, Wanje Park, and Hyunkook Jang</i>	
Fisheye Keyboard: Whole Keyboard Displayed on PDA	452
<i>Mathieu Raynal and Philippe Truillet</i>	

Mobile Phone Video Camera in Social Context	460
<i>Erika Reponen, Jaakko Lehtikoinen, and Jussi Impiö</i>	
Developing a Motion-Based Input Model for Mobile Devices	470
<i>Mark Richards, Tim Dunn, and Binh Pham</i>	
Designing Input Method of Hand-Held Device with International User Studies	480
<i>Scott Song, Joonhwan Kim, Wanje Park, Boeun Park, and Hyunkook Jang</i>	
Positional Mapping Multi-tap for Myanmar Language	486
<i>Ye Kyaw Thu and Yoshiyori Urano</i>	
Pen-Based User Interface Based on Handwriting Force Information	496
<i>ZhongCheng Wu, LiPing Zhang, and Fei Shen</i>	
BetweenKeys: Looking for Room Between Keys	504
<i>Youngwoo Yoon and Geehyuk Lee</i>	
Mobile Magic Hand: Camera Phone Based Interaction Using Visual Code and Optical Flow	513
<i>Yuichi Yoshida, Kento Miyaoku, and Takashi Satou</i>	
Online Chinese Characters Recognition Based on Force Information by HMM	522
<i>Mozi Zhu, Fei Shen, and ZhongCheng Wu</i>	
Part 3: Virtual Environments and 3D Interaction	
Comparative Characteristics of a Head-Up Display for Computer-Assisted Instruction	531
<i>Kikuo Asai and Hideaki Kobayashi</i>	
Flight Crew Perspective on the Display of 4D Information for En Route and Arrival Merging and Spacing	541
<i>Vernol Battiste, Walter W. Johnson, Nancy H. Johnson, Stacie Granada, and Arik-Quang Dao</i>	
Designing a Direct Manipulation HUD Interface for In-Vehicle Infotainment	551
<i>Vassilis Charissis, Martin Naef, Stylianos Papanastasiou, and Marianne Patera</i>	
Using Agent Technology to Study Human Action and Perception Through a Virtual Street Simulator	560
<i>Chiung-Hui Chen and Mao-Lin Chiu</i>	

Visualizing Interaction in Digitally Augmented Spaces: Steps Toward a Formalism for Location-Aware and Token-Based Interactive Systems	569
<i>Yngve Dahl and Dag Svanæs</i>	
Lecture Notes in Computer Science: Assessment of Perception of Visual Warning Signals Generated Using an Augmented Reality System	579
<i>Marek Dzwiarek, Anna Luczak, Andrzej Najmiec, Cezary Rzymkowski, and Tomasz Strawinski</i>	
Force Field Based Expression for 3D Shape Retrieval	587
<i>Xi Geng, Wenyu Liu, and Hairong Liu</i>	
Comparing Two Head-Mounted Displays in Ultrasound Scanning	597
<i>Juha Havukumpu, Jukka Häkkinen, Eija Grönroos, Pia Vähäkangas, and Göte Nyman</i>	
Evaluating the Usability of an Auto-stereoscopic Display	605
<i>Zhao Xia Jin, Ya Jun Zhang, Xin Wang, and Thomas Plocher</i>	
Aspiring for a Virtual Life	615
<i>Hee-Cheol Kim</i>	
Immersive Viewer System for 3D User Interface	624
<i>Dongwuk Kyoung, Yunli Lee, and Keechul Jung</i>	
Resolving Occlusion Between Virtual and Real Scenes for Augmented Reality Applications	634
<i>Lijun Li, Tao Guan, and Bo Ren</i>	
Augmented Reality E-Commerce Assistant System: Trying While Shopping	643
<i>Yuzhu Lu and Shana Smith</i>	
RealSound Interaction: A Novel Interaction Method with Mixed Reality Space by Localizing Sound Events in Real World	653
<i>Mai Otsuki, Asako Kimura, Takanobu Nishiura, Fumihisa Shibata, and Hideyuki Tamura</i>	
A New Model of Collaborative 3D Interaction in Shared Virtual Environment	663
<i>Nassima Ouramdane-Djerrah, Samir Otmane, and Malik Mallem</i>	
Multi-finger Haptic Interface for Collaborative Tasks in Virtual Environments	673
<i>Maria Oyarzabal, Manuel Ferre, Salvador Cobos, Mary Monroy, Jordi Barrio, and Javier Ortego</i>	
Measuring Presence in Mobile 3D	681
<i>Hyun Jong Ryu, Rohae Myung, and Byongjun Lee</i>	

IMPROVE: Designing Effective Interaction for Virtual and Mixed Reality Environments	689
<i>Pedro Santos, André Stork, Thomas Gierlinger, Alain Pagani, Bruno Araújo, Ricardo Jota, Luis Bruno, Joaquim Jorge, Joao Madeiras Pereira, Martin Witzel, Giuseppe Conti, Raffaele de Amicis, Iñigo Barandarian, Céline Paloc, Maylu Hafner, and Don McIntyre</i>	
Evaluation of Wayfinding Aids Interface in Virtual Environment	700
<i>Anna Wu, Wei Zhang, Bo Hu, and Xiaolong Zhang</i>	
A 3D Sketching Interacting Tool for Physical Simulation Based on Web	710
<i>Ziyi Zheng, Lingyun Sun, and Shouqian Sun</i>	
Visual and Auditory Information Specifying an Impending Collision of an Approaching Object	720
<i>Liu Zhou, Jingjiang Yan, Qiang Liu, Hong Li, Chaoxiang Xie, Yinghua Wang, Jennifer L. Campos, and Hong-jin Sun</i>	
Part 4: Ubiquitous Interaction	
Coin Size Wireless Sensor Interface for Interaction with Remote Displays	733
<i>Atia Ayman, Shin Takahashi, and Jiro Tanaka</i>	
Hit Me Baby One More Time: A Haptic Rating Interface	743
<i>Christoph Bartneck, Philomena Athanasiadou, and Takayuki Kanda</i>	
Minimising Pedestrian Navigational Ambiguities Through Geoannotation and Temporal Tagging	748
<i>Ashweeni Beeharee and Anthony Steed</i>	
Paper Metaphor for Tabletop Interaction Design	758
<i>Guillaume Besacier, Gaétan Rey, Marianne Najm, Stéphanie Buisine, and Frédéric Vernier</i>	
Advanced Drivers Assistant Systems in Automation	768
<i>Caterina Calefato, Roberto Montanari, and Fabio Tango</i>	
Implementing an Interactive Collage Table System with Design Puzzle Exploration	778
<i>Teng-Wen Chang and Yuan-Bang Cheng</i>	
Designing Smart Living Objects – Enhancing vs. Distracting Traditional Human–Object Interaction	788
<i>Pei-yu (Peggy) Chi, Jen-hao Chen, Shih-yen Liu, and Hao-hua Chu</i>	
Drawing Type Tactile Presentation for Tactile Letter Recognition	798
<i>Ju-Hui Cho and Minsoo Hahn</i>	

MKPS: A Multi-level Key Pre-distribution Scheme for Secure Wireless Sensor Networks	808
<i>Sung Jin Choi and Hee Yong Youn</i>	
AGV Simulator and Implementer Design	818
<i>Qiang Huang, TianHao Pan, and WenHuan Xu</i>	
Interactive Browsing of Large Images on Multi-projector Display Wall System	827
<i>Zhongding Jiang, Xuan Luo, Yandong Mao, Binyu Zang, Hai Lin, and Hujun Bao</i>	
Wearable Healthcare Gadget for Life-Log Service Based on WPAN	837
<i>Sang-Hyun Kim, Dong-Wan Ryoo, and Changseok Bae</i>	
Vision Based Laser Pointer Interaction for Flexible Screens	845
<i>Nam Woo Kim, Seung Jae Lee, Byung Gook Lee, and Joon Jae Lee</i>	
Implementation of Multi-touch Tabletop Display for HCI (Human Computer Interaction)	854
<i>Song-Gook Kim, Jang-Woon Kim, and Chil-Woo Lee</i>	
End User Tools for Ambient Intelligence Environments: An Overview . . .	864
<i>Mavrommati Irene and John Darzentas</i>	
Tangible Interaction Based on Personal Objects for Collecting and Sharing Travel Experience	873
<i>Elena Mugellini, Elisa Rubegni, and Omar Abou Khaled</i>	
Attentive Information Support with Massive Embedded Sensors in Room	883
<i>Hiroshi Noguchi, Taketoshi Mori, and Tomomasa Sato</i>	
A Novel Infrastructure of Digital Storytelling Theme Museums Based on RFID Systems	893
<i>Myunjin Park and Keechul Jung</i>	
A Novel Human-Computer Interface Based on Passive Acoustic Localisation	901
<i>D.T. Pham, Ze Ji, Ming Yang, Zuobin Wang, and Mostafa Al-Kutubi</i>	
Inhabitant Guidance of Smart Environments	910
<i>Parisa Rashidi, G. Michael Youngblood, Diane J. Cook, and Sajal K. Das</i>	
Application of Tangible Acoustic Interfaces in the Area of Production Control and Manufacturing	920
<i>Wolfgang Rolshofen, Peter Dietz, and Günter Schäfer</i>	
Cyberwalk: Implementation of a Ball Bearing Platform for Humans	926
<i>Martin Schwaiger, Thomas Thümmel, and Heinz Ulbrich</i>	

A Huge Screen Interactive Public Media System: Mirai-Tube	936
<i>Akio Shinohara, Junji Tomita, Tamio Kihara, Shinya Nakajima, and Katsuhiko Ogawa</i>	
Kitchen of the Future and Applications	946
<i>Itiro Siiro, Reiko Hamada, and Noyuri Mima</i>	
A Tangible Game Interface Using Projector-Camera Systems	956
<i>Peng Song, Stefan Winkler, and Jefry Tedjokusumo</i>	
Context-Aware Mobile AR System for Personalization, Selective Sharing, and Interaction of Contents in Ubiquitous Computing Environments	966
<i>Youngjung Suh, Youngmin Park, Hyoseok Yoon, Yoonje Chang, and Woontack Woo</i>	
Center or Corner? The Implications of Mura Locations on LCD Displays	975
<i>Kuo-Hao Tang, Yueh-Hua Lee, and Kuo Hsun Ku</i>	
A Taxonomy of Physical Contextual Sensors	982
<i>Philippe Truillet</i>	
Human-Robot Interaction in the Home Ubiquitous Network Environment	990
<i>Hirotaada Ueda, Michihiko Minoh, Masaki Chikama, Junji Satake, Akihiro Kobayashi, Kenzabro Miyawaki, and Masatsugu Kidode</i>	
Measuring User Experiences of Prototypical Autonomous Products in a Simulated Home Environment	998
<i>Martijn H. Vastenburg, David V. Keyson, and Huib de Ridder</i>	
Evaluation of Tangible User Interfaces (TUIs) for and with Children – Methods and Challenges	1008
<i>Diana Xu, Janet C Read, Emanuela Mazzone, Stuart MacFarlane, and Martin Brown</i>	
Social Intelligence as the Means for Achieving Emergent Interactive Behaviour in Ubiquitous Computing Environments	1018
<i>Ioannis D. Zaharakis and Achilles D. Kameas</i>	
The Research on Human-Computer Interaction in Ambient Intelligence	1030
<i>Yong Zhang, Yibin Hou, Zhangqin Huang, Hui Li, Rui Chen, and Haitao Shang</i>	
The Universal Control Hub: An Open Platform for Remote User Interfaces in the Digital Home	1040
<i>Gottfried Zimmermann and Gregg Vanderheiden</i>	

Part 5: Emerging Interactive Technologies

An Investigation of Usability Evaluation for Smart Clothing	1053
<i>Haeng-Suk Chae, Ji-Young Hong, Hyun-Seung Cho, Kwang-Hee Han, and Joo-Hyeon Lee</i>	
Textile Touch Visualization for Clothing E-Business	1061
<i>G. Cho, S. Jang, J. Chae, K. Jeong, and G. Salvendy</i>	
A Development of Design Prototype of Smart Healthcare Clothing for Silver Generation Based on Bio-medical Sensor Technology	1070
<i>Hakyung Cho and Joohyeon Lee</i>	
Design and Evaluation of Textile-Based Signal Transmission Lines and Keypads for Smart Wear	1078
<i>Jayoung Cho, Jihye Moon, Moonsoo Sung, Keesam Jeong, and Gilsoo Cho</i>	
Display Button: A Marriage of GUI and PUI	1086
<i>Stanley Chung, Jung-Hyun Shim, and Changsu Kim</i>	
Construction and Validation of a Neurophysio-technological Framework for Imagery Analysis	1096
<i>Andrew Cowell, Kelly Hale, Chris Berka, Sven Fuchs, Angela Baskin, David Jones, Gene Davis, Robin Johnson, and Robin Fatch</i>	
A Study on the Acceptance Factors of the Smart Clothing	1106
<i>Ji-Young Hong, Haeng-Suk Chae, and Kwang-Hee Han</i>	
A Wearable Computing Environment for the Security of a Large-Scale Factory	1113
<i>Jiung-yao Huang and Chung-Hsien Tsai</i>	
Modification of Plastic Optical Fiber for Side-Illumination	1123
<i>Min Ho Im, Eun Ju Park, Chang Heon Kim, and Moo Sung Lee</i>	
Exploring Possibilities of ECG Electrodes for Bio-monitoring Smartwear with Cu Sputtered Fabrics	1130
<i>Seeun Jang, Jayoung Cho, Keesam Jeong, and Gilsoo Cho</i>	
Development of Educational Program for Quick Response System on Textile and Fashion E-Business	1138
<i>Kyung-Yong Jung, Jong-Hun Kim, Jung-Hyun Lee, and Young-Joo Na</i>	
Preparation of Conductive Materials for Smart Clothing: Doping and Composite of Conducting Polymer	1147
<i>Jooyong Kim and Nowoo Park</i>	
A Feasibility Study of Sixth Sense Computing Scenarios in a Wearable Community	1155
<i>Seunghwan Lee, Hojin Kim, Sumi Yun, and Geehyuk Lee</i>	

Wearable Computers IN the Operating Room Environment	1165
<i>Qi Ma, Peter Weller, Gerlinde Mandersloot, Arjuna Weerasinghe, and Darren Morrow</i>	
Coupling the Digital and the Physical in Therapeutic Environments	1173
<i>Patrizia Marti and Leonardo Giusti</i>	
Functional Brain Imaging for Analysis of Reading Effort for Computer-Generated Text	1183
<i>Erin M. Nishimura, Evan D. Rapoport, Benjamin A. Darling, Jason P. Cervenka, Jeanine K. Stefanucci, Dennis R. Proffitt, Traci H. Downs, and J. Hunter Downs III</i>	
Smart Furoshiki: A Context Sensitive Cloth for Supporting Everyday Activities	1193
<i>Ryo Ohsawa, Kei Suzuki, Takuya Imaeda, Masayuki Iwai, Kazunori Takashio, and Hideyuki Tokuda</i>	
Information Display of Wearable Devices Through Sound Feedback of Wearable Computing	1200
<i>Park Young-hyun and Han Kwang-hee</i>	
An Evaluation Framework for the Design Concepts of Tangible Interface on New Collaborative Work Support System	1210
<i>Youngbo Suh, Cheol Lee, Joobong Song, Minjoo Jung, and Myung Hwan Yun</i>	
The Research of Using Image-Transformation to the Conceptual Design of Wearable Product with Flexible Display	1220
<i>Yung-Chin Tsao, Li-Chieh Chen, and Shaio-Chung Chan</i>	
User Interaction Design for a Wearable and IT Based Heart Failure System	1230
<i>Elena Villalba, Ignacio Peinado, and Maria Teresa Arredondo</i>	
VortexBath: Study of Tangible Interaction with Water in Bathroom for Accessing and Playing Media Files	1240
<i>Jun-ichiro Watanabe</i>	
Author Index	1249