



ACHI 2017

The Tenth International Conference on Advances in Computer-Human
Interactions

March 19 – 23, 2017

Nice, France

ACHI 2017 Editors

Roy Oberhauser, Aalen University, Germany

Jaehyun Park, Incheon National University (INU), South Korea

Steffen Gerhard Schulz, Karlsruhe Institute of Technology, Germany

Paul Rosenthal, University of Rostock, Germany

Ljilja (Lilia) Ruzic Kascak, Georgia Institute of Technology, USA

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (4239) by International Academy, Research, and Industry Association (IARIA)
Please refer to the Copyright Information page.

Printed by Curran Associates, Inc. (4239)

International Academy, Research, and Industry Association (IARIA)
412 Derby Way
Wilmington, DE 19810

Phone: (408) 893-6407
Fax: (408) 527-6351

petre@iaria.org

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2633
Email: curran@proceedings.com
Web: www.proceedings.com

Table of Contents

Subjective Contribution of Vibrotactile Modality in Addition to or Instead of Auditory Modality for Takeover Notification in an Autonomous Vehicle <i>Valerie Duthoit, Eric Enregle, Jean-Marc Sieffermann, Camille Michon, and David Blumenthal</i>	1
Gesture-based User Interface Design for Static 3D Content Manipulation Using Leap Motion Controller <i>Naveed Ahmed</i>	7
Toward a UI Adaptation Approach Driven by User Emotions <i>Julian Galindo, Sophie Dupuy-Chessa, and Eric Ceret</i>	12
Sonification of 3D Object Shape for Sensory Substitution: An Empirical Exploration <i>Torkan Gholamalizadeh, Hossein Pourghaemi, Ahmad Mhaish, Gokhan Ince, and Damien Jade Duff</i>	18
Multi-Operator Gesture Control of Robotic Swarms Using Wearable Devices <i>Sasanka Nagavalli, Meghan Chandarana, Michael Lewis, and Katia Sycara</i>	25
Natural Language User Interface For Software Engineering Tasks <i>Alexander Wachtel, Jonas Klamroth, and Walter F. Tichy</i>	34
“Fly Like This”: Natural Language Interfaces for UAV Mission Planning <i>Meghan Chandarana, Erica Meszaros, Anna Trujillo, and Bonnie Danette Allen</i>	40
Building Mobile Health Applications Using Archetypes <i>Andre Araujo, Valeria Times, Marcus Silva, and Carlos Bezerra</i>	47
A Comparative Assessment of User Interfaces for Choreography Design <i>Tafadzwa Joseph Dube, Gokhan Kurt, and Gokhan Ince</i>	53
Product Design in the Smart City Investigation of Priority Needs in Terms of Human Interaction in the Smart City <i>Puyuelo Cazorla Marina, Merino Sanjuan Lola, and Val Fiel Monica</i>	62
Investigating Self-disclosure and the Amount of Speaking in an Online Meeting Under the Rule of Casual Talking and Casual Listening <i>Yoshihiro Ichikawa, Satsuki Ayaya, Shinichiro Kumagaya, and Fumihide Tanaka</i>	68
WeaveStudio: An Object-Oriented Toolkit for Textile Pattern Colouring and Visualization <i>Ahmed Mohamed Fahmy Yousef and Mahmoud Kamel Mahmoud Abdalaziz</i>	74
Visualizing Workload and Emotion Data in Air Traffic Control - An Approach Informed by the Supervisors Decision Making Process <i>Linda Pfeiffer, Tabea Sims, and Paul Rosenthal</i>	81

Changes in Small Eye Movements in Response to Impressions of Emotion-Evoking Pictures <i>Tetsuya Furuta and Minoru Nakayama</i>	88
Hierarchy Visualization Designs and their Impact on Perception and Problem Solving Strategies <i>Nicholas H. Muller, Benny Liebold, Daniel Pietschmann, Peter Ohler, and Paul Rosenthal</i>	93
Topic-based Revision Tool to Support Academic Writing Skill for Research Students <i>Harriet N Ocharo, Shinobu Hasegawa, and Kiyooki Shirai</i>	102
Annotation and View Synchronization of Shared 3D Models <i>Hiroshi Shimada, Kengo Imae, and Naohiro Hayashibara</i>	108
A System to Depict the Cognitive Process of Trainees Based on Multiple Skill Parameters <i>Norikatsu Fujita, Hiroshi Takeshita, Sho Aoki, Kazushige Matsumoto, Tomohiro Murakami, Hirotada Fukae, and Minoru Hoshino</i>	114
Interactions with Projected Augmented Relief Models (PARM) <i>Nachnoer Arss, Alastair D Smith, and Gary Priestnall</i>	122
A Comparative Study between Younger and Older Users on Mobile Interface Navigation <i>Qingchuan Li and Yan Luximon</i>	128
Two-button Mobile Interface: Touchscreen Based Text-Entry for Visually-Impaired Users <i>Hanseul Cho and Jae-joon Kim</i>	134
Towards Accessibility Guidelines of Interaction and User Interface Design for Alzheimer's Disease Patients <i>Fatma Ghorbel, Elisabeth Metais, Nebrasse Ellouze, Faycal Hamdi, and Faiez Gargouri</i>	143
Identifying Inexpensive Off-the-Shelf Laser Pointers for Multi-User Interaction on Large Scale Displays <i>Christopher Stuetzle, Barb Cutler, and Tyler Sammann</i>	150
Industry 4.0 and the Futur Revolution for Human-Centered Industry <i>Adrien Brunet and Steffen Scholz</i>	154
Industry 4.0 Human-Oriented Challenges Using the Example of Additive Manufacturing Technologies <i>Daniel Sampaio, Marc-Andre Weber, and Steffen Scholz</i>	158
Analysis of The Cross Section of Inkjet-Printed Conductive Tracks on PET Films <i>Martin Ungerer, Waldemar Spomer, Lisa Veith, Annika Fries, Christian Debatin, Irene Wacker, Rasmus Schroder, and Ulrich Gengenbach</i>	162
Usability Analysis of Archetyped Interfaces for the Electronic Health Record: a Comparative Study	169

Danielle Santos Alves, Valeria Cesario Times, Andre Magno Costa de Araujo, Marcus Urbano da Silva, Amadeu Sa Campos Filho, and Magdala de Araujo Novaes

Human Activities Recognition in Smart Homes Using Stacked Autoencoders <i>Nour El Houda Mbarki, Ridha Ejbali, and Mourad Zaied</i>	176
Immersed in Software Structures: A Virtual Reality Approach <i>Roy Oberhauser and Carsten Lecon</i>	181
Study of Gross Muscle Fatigue During Human-Robot Interactions <i>Azeemsha Thacham Poyil, Farshid Amirabdollahian, and Volker Steuber</i>	187
Wasting “Waste” is a Waste: Gleaning Deleted Text Fragments for Use in Future Knowledge Creation <i>Hiroaki Ikuta and Kazushi Nishimoto</i>	193
PassGame: A Shoulder-Surfing Resistant Mobile Authentication Scheme <i>Jonathan Gurary, Ye Zhu, Nahed Alnhash, and Huirong Fu</i>	200
A Hybrid System Based on Wrinkles Shapes and Biometric Distances for Emotion Recognition <i>Rim Afdhal, Ridha Ejbali, and Mourad Zaied</i>	206
Nano Inks for Additive Manufacturing – A Safe-by-Design-Approach <i>Katja Nau, Tobias Mueller, Daniel J.B.S. Sampaio, and Steffen G. Scholz</i>	212
Bonding of Flexible Multilayer Printed Systems based on PET-Substrates – An Investigation of Challenges and Promising Approaches <i>Liane Koker, Anu Paul, Didem Kinay, Jan-Hendric Rakebrandt, Heino Besser, Daniel Moser, Martin Ungerer, and Ulrich Gengenbach</i>	215
Concept of an Active Optical Subsystem for Use in an Ophthalmic Implant <i>Ingo Sieber, Thomas Martin, Georg Bretthauer, and Ulrich Gengenbach</i>	222
“Was it easy”? “Yes”. “Will you use it”? “No”. Elderly Trying Out a Kinect Interface <i>Guri Verne</i>	227
The Hand Gesture Recognition System Using Depth Camera <i>Yang-Keun Ahn and Young-Choong PARK</i>	234
FPGA-based Power Efficient Interactive Augmented Reality Learning Applications for Children <i>Abdulrahman Algharbi, Farida Hamed, and Noha Younis</i>	239
Designing Icons on User Interfaces for 4-6 year Old Children <i>Shan Yan</i>	246

User Experience with Intelligent Proactive Technology in Automotive: a Study in Context <i>Mathilde Duczman, Eric Brangier, and Aurelie Thevenin</i>	254
Serious Games Evaluation Using eye-tracking and Affective Computing Techniques. Case Study of OSH Training Course <i>Jan K. Argasinski and Iwona Grabska-Gradzinska</i>	260
The Usability State of Nine Public Self-Service Applications in Denmark <i>Jane Billestrup, Jan Stage, and Anders Bruun</i>	265
Methods for Analyzing Millennials' Characteristics and Contexts of Media Usage in Multi-Device Environments <i>Mingyu Lee, Jiyoung Kwahk, Sung H. Han, Kyudong Park, Ju Hwan Kim, Dawoon Jeong, Seokmin Oh, and Gunho Chae</i>	271
User Experience Design of Smart Headwear for Bike User <i>Jae-hyun Choi, Sung-soo Bae, Juhee Kim, Sangyoung Yoon, and Soon-won Chung</i>	275
Designing a Feeding Support System for Infants using IoT <i>Kyudong Park, Jiyoung Kwahk, and Sung H. Han</i>	280
Suggesting Design Method for Performance Evaluation System Based on IoT Data: Considering UX <i>Hyeji Jang, Jiyoung Kwahk, Sung H. Han, Minseok Song, Dong Gu Choi, Kyudong Park, Dohyeon Kim, Young Deok Won, and In Sub Jeong</i>	283
The Idea Generation Process for Support Tools Enhancing Pedestrian Experience of the Mobility Handicapped in Smart City <i>Dong Yeong Jeong, Jiyoung Kwahk, Sung H. Han, Joohwan Park, Mingyu Lee, Kyudong Park, Ju Hwan Kim, Hyeji Jang, and Dawoon Jeong</i>	288
Development of the Support Tool Preventing Violations in Nuclear Power Plants <i>Dawoon Jeong, Sung Ho Han, Dong Yeong Jeong, and Bora Kang</i>	293
Development of Web based UX Diagnosis System for Small and Medium Sized Home Appliance Manufacturers in the IoT Era <i>Joohwan Park, Jiyoung Kwahk, Sung H. Han, Bora Kang, Mingyu Lee, Dong Yeong Jeong, Hyeji Jang, Dawoon Jeong, Jungchul Park, and Jaehyun Park</i>	299
Design and Evaluation of Mobile Interfaces for an Aging Population <i>Ljilja Ruzic, Christina N. Harrington, and Jon A. Sanford</i>	305
Design Thinking as a Process for Innovative Older Adult Applications <i>Claudia Rebola and Elizabeth Hermann</i>	310