



ACHI 2016

The Ninth International Conference on Advances in Computer-Human
Interactions

April 24 - 28, 2016

Venice, Italy

ACHI 2016 Editors

Alma Leora Culén , University of Oslo, Norway

Leslie Miller, Iowa State University - Ames, USA

Irini Giannopulu, UPMC, France

Birgit Gersbeck-Schierholz, Leibniz Universität Hannover, Germany

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© (2016) by International Academy, Research, and Industry Association (IARIA)
Please refer to the Copyright Information page.

Printed by Curran Associates, Inc. (2016)

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

ACHI 1: USABILITY AND UNIVERSAL ACCESSIBILITY I

Do More Pictures Mean More Effort? Investigating the Effects of Monocular Depth on Target Detection in a 3D WIMP Pictures Folder	1
<i>M. Kyritsis, S. Gulliver, E. Ferdoes, W. Nadee</i>	
Towards a Service-based Architecture for Web Accessibility Federated Evaluation	6
<i>J. Hilera, S. Oton, C. Martin-Amor, C. Timbi-Sisalima</i>	
Enhancing User Experience of Users with Disabilities: Application to Open Educational Resources Websites	11
<i>R. Navarrete, S. Lujan-Mora, M. Penafiel</i>	
Interactive Gesture Chair	17
<i>M. Islam, S. Arefin, H. Mahmud, M. Hasan</i>	

ACHI 2: SOCIAL ASPECTS OF HUMAN-COMPUTER INTERACTION I

Is Aging the New Disease?	21
<i>A. Woll</i>	
Probing Privacy in Practice: Privacy Regulation and Instant Sharing of Video in Social Media when Running	29
<i>J. Karlsen, S. Stigberg, J. Herstad</i>	
“Personality-Friendly” Objects: A New Paradigm For Human-Machine Interaction	37
<i>N. Rosini, L. Cominelli, M. Pieroni, F. Chiarello, D. Mazzei, G. Fantoni</i>	
Young and Creative - A Designerly Approach to Enhance Interventions in the Public Space	44
<i>A. Gasparini</i>	

ACHI 3: SOCIAL ASPECTS OF HUMAN-COMPUTER INTERACTION II

‘Pop-up’ Maker-spaces: Catalysts for Creative Participatory Culture	50
<i>S. Pandey, S. Srivastava</i>	
Visualizing Quantified Self Data Using Avatars	57
<i>I. Nake, A. Alissandrakis, J. Zbick</i>	
Human Activity Recognition using Smartphone Sensors with Context Filtering	67
<i>S. Hasan, M. Masnad, M. Khan, H. Mahmud, K. Hasan</i>	

ACHI 4: INTERACTION DEVICES

Text Input System Using Hand Shape Recognition	74
<i>Y. Ahn, K. Jung</i>	
A Passive Stewart Platform Based Joystick to Control Spatially Moving Objects	79
<i>I. Yildiz</i>	
Results of a 3 Year Study of a BCI-Based Communicator for Patients with Severe Disabilities	84
<i>P. Fedele, M. Gioia, F. Giannini, A. Rufa</i>	
JoGuide: A Mobile Augmented Reality Application for Locating and Describing Surrounding Sites	88
<i>F. Wedyan, R. Freihart, I. Aloqily, S. Wedyan</i>	

ACHI 5: HUMAN-COMPUTER INTERACTION IN EDUCATION AND TRAINING I

A New Definition of Competence Developing Games - and a Framework to Assess them -	95
<i>J. Konig, M. Wolf</i>	
Moodle as a Support Tool in Higher Education: Academic Authorities Opinion	98
<i>M. Penafiel, R. Navarrete, S. Vasquez, S. Lujan-Mora</i>	
Video Game Story Analysis Using Layered Graphs and Eye Tracking System	105
<i>I. Grabska-Gradzinska</i>	

ACHI 6: HUMAN-COMPUER INTERACTION IN EDUCATION AND TRAINING II

Focus Group Study on Student Perception of Electronic Textbooks	110
<i>K. Sheen, Y. Luximon</i>	
A Training-assistance System using Mobile Augmented Reality for Outdoor-facility Inspection.....	116
<i>Y. Yumbe, O. Segawa, M. Yamakita</i>	
Cross-Platform Web Framework for Gaze Tracking: New Opportunities for Mobile Interaction.....	123
<i>N. Harich, S. Gebauer, H. Schmidt, G. Zimmermann</i>	
CalliSmart: an Adaptive Informed Environment for Intelligent Calligraphy Training.....	132
<i>R. Frenoy, I. Thouvenin, Y. Soullard, O. Gapenne</i>	

ACHI 7: USABILITY AND UNIVERSAL ACCESSIBILITY II

Towards Web Accessibility Guidelines of Interaction and Interface Design for People with Autism Spectrum Disorder	138
<i>T. Britto, E. Pizzolato</i>	
Webpage Accessibility and Usability for Autistic Users: A Case Study on a Tourism Website.....	145
<i>A. Dattolo, F. Luccio, E. Pirone</i>	
EYE POINTER: A Real Time Cost Effective Computer Controlling System Using Eye and Head Movement.....	153
<i>S. Sabab, S. Hussain, H. Mahmud, M. Kabir, M. Hasan</i>	
A Process Approach to Ensuring Universally Designed Web Content: A Preliminary Case Study of the Norwegian Broadcasting Corporation.....	160
<i>L. Nordli, G. Giannoumis</i>	

ACHI 8: DESIGN AND EVALUATION I

Designing and Evaluating Interfaces for the CAPTAIN MEMO Memory Prosthesis.....	164
<i>F. Ghorbel, N. Ellouze, E. Metais, F. Gargouri, F. Hamdi, N. Herradi</i>	
Ergonomic Criteria for the Evaluation of Context-Aware User Interface.....	170
<i>I. Riahi, F. Moussa, R. Dziri</i>	
Designing for Sustainability: Challenges and Theoretical Considerations: Discussing Theoretical Considerations for Framing Strategic Sustainable Design Approaches.....	177
<i>S. Srivastava, S. Pandey</i>	
From Difficult Artifacts to Easy to Use Designs.....	185
<i>T. Bratteteig, G. Verne</i>	

ACHI 9: DESIGN AND EVALUATION II

Augmented Reality as a Tutorial Tool for Construction Tasks: Wood Frame Wall Assembly Supported by Smartphones.....	192
<i>A. Cupersmid, M. Grachet, M. Fabricio</i>	
A Non-commercial Approach to Experience Design Teaching: Interactive Systems Developed at Escola Superior de Desenho Industrial	198
<i>M. Martins</i>	
Eye Gaze Based Dynamic Warnings	204
<i>M. Zeng, F. Zhu, S. Carpenter</i>	
Tangible Technologies for the Development of Play Skills in Autistic Children	212
<i>P. Marti, L. Giacolini, I. Iacono</i>	

ACHI 10: DESIGN AND EVALUATION III

Tablet Game Design and Evaluation: A Practice-based Experimentation Approach	220
<i>U. Kokil</i>	
A Model Driven Approach For Adaptive User Interfaces Specification: User, Task and Environment Impact.....	225
<i>H. Taktak, I. Riahi, F. Moussa</i>	
Body Gesture Recognition Framework for 3D Interactive Systems.....	233
<i>C. Shin, J. Hong, Y. Kim, S. Hong, H. Kang</i>	

Evaluation of a Driver Assistant Client in the Context of Urban Logistics and Electric Vehicles	235
<i>C. Stolcis, J. Buchholz, V. Schau</i>	

ACHI 11: DESIGN AND EVALUATION IV

Towards Model-based Usability Evaluation of Interactive Application: Detecting Unexpected Situations and Validating System TaskModel	240
<i>M. Jarraya, F. Moussa</i>	

ACHI 12: USER MODELING AND USER FOCUS I

Complex Emotions Expression and Recognition for Paranoid Personality Disorder	245
<i>M. Saleh</i>	
A New Scientometric Dimension for User Profile	251
<i>N. Ibrahim, A. Chaibi, H. Ghezala</i>	
Basic Study of an Evaluation that Uses the Center of Gravity of a Facial Thermal Image for the Estimation of Autonomic Nervous Activity	258
<i>S. Matsuno, S. Kosuge, S. Kawazura, N. Itakura, T. Mizuno, H. Asano</i>	
Autonomic Nervous Activity Estimation Algorithm with Facial Skin Thermal Image	262
<i>T. Mizuno, S. Kawazura, K. Akehi, S. Matsuno, K. Mito, N. Itakura, H. Asano</i>	

ACHI 13: HUMAN-ROBOT INTERACTION I

Minimalistic Toy Robot Encourages Verbal and Emotional Expressions in Autism	267
<i>I. Giannaopulu, V. Montreynaud, T. Watanabe</i>	
User Acceptance of Social Robots	274
<i>I. Hameed, Z. Tan, N. Thomsen, X. Duan</i>	
Recognition of Technical Gestures for Human-Robot Collaboration in Factories	280
<i>E. Coupete, F. Moutarde, S. Manitsaris, O. Hugues</i>	
First Results of Studying Human Robot Interaction in the Wild — The Hobbit Robot Tested by Older Adults at Home	286
<i>M. Vincze, D. Wolf, M. Bajones, A. Weiss, M. Suchi, D. Fischinger, J. Pripfl, C. Gisinger</i>	

ACHI 14: OTHER DOMAINS APPLICATIONS

Evaluation of a 3D Human System Interface for Air Traffic Control	292
<i>A. Baier, A. Zimmer</i>	
Study of Sign Language Expression of Medical Sign Language Words	297
<i>M. Terauchi, Y. Nagashima</i>	
Alphabet Recognition in Air Writing Using Depth Information	299
<i>R. Islam, H. Mahmud, M. Hasan, H. Rubaiyeat</i>	

ACHI 15: USER MODELING AND USER FOCUS II

Interacting with the Customers through New Technologies: Having a Better Understanding of User's Experience	302
<i>L. Guia, M. Cazorla, L. Sanjuan</i>	
A Case Study of Four IT Companies Developing Usable Public Digital Self-Service Solutions	307
<i>J. Billestrup, J. Stage, M. Larusdottir</i>	
Expertise and Behavior of Unix Command Line Users: an Exploratory Study	315
<i>M. Gharehyazie, B. Zhou, I. Neamtii</i>	

ACHI 16: HUMAN-ROBOT INTERACTION II

Towards Semantic Analysis of Training-Learning Relationships Within Human-Machine Interaction	323
<i>F. Badie</i>	
Reduction of Dental Anxiety and Pain in Children Using Robots	327
<i>M. Yasemin, Y. Kasimoglu, S. Kocaaydin, E. Karsli, E. Ince, G. Ince</i>	

Recognizing Hand Gestures for Human-Robot Interaction	333
<i>Z. Zafar, K. Berns</i>	

ACHI 17: INTERACTIVE SYSTEMS

Design of an Interactive System for Immersive Movie Watching Experience	339
<i>Y. Liu, T. Li</i>	
Usability Analysis in the Liquid Galaxy Platform	345
<i>I. Arroyo, F. Gine, C. Roig, T. Granollers</i>	
Adaptive Smart Environments: Detecting Human Behaviour from Multimodal Observation	353
<i>R. Heffernan, M. Walters, N. Davey, R Boekhorst, K. Koay, K. Dautenhahn</i>	
Hand Gesture Recognition Using SIFT Features on Depth Image	359
<i>H. Mahmud, M. Hasan, A. Tariq, M. Mottalib</i>	

ACHI 18: PRINCIPLES, THEORIES, AND MODELS

Effects of Intervals between Roadside Columns on Speed Perception in Human Walking and Running Speed	366
<i>Y. Yoshioka, H. Watanabe, A. Enta, M. Takahashi, T. Sano</i>	
A Software Design Tool for the Modeling of Emotions in Autonomous Agents	372
<i>X. Gonzalez-Olvera, L. Rodriguez, L. Castro, R. Palacio</i>	
Logical Characterisation of Concept Transformations from Human into Machine Relying on Predicate Logic	376
<i>F. Badie</i>	
The Analysis of the Specific Dictionaries for Compressive Sensing of EEG Signals	380
<i>M. Fira, V. Maiorescu, L. Goras</i>	

ACHI 19: INTERFACES I

FIRMA: A Development Framework for Elderly-Friendly Interactive Multimodal Applications for Assistive Robots	386
<i>N. Kazepis, M. Antona, C. Stephanidis</i>	
The Characteristics and Application of Anthropomorphic Interface: A Design Spectrum	398
<i>N. Tuah, G. Wills, A. Ranchhod</i>	
Change your Perspective: Exploration of a 3D Network Created from Open Data in an Immersive Virtual Reality Environment	403
<i>N. Reski, A. Alissandrakis</i>	
User-Customizable Web Components for Building One-Page Sites	411
<i>P. Lisená, J. Xhembulla, G. Malnati, P. Morra</i>	

ACHI 20: INTERFACES II

A Natural Language Dialog System Based on Active Ontologies	417
<i>A. Wachtel, J. Klamroth, W. Tichy</i>	
Comparative Assessment of Mobile Navigation Applications using 2D Maps and Augmented Reality Interfaces	423
<i>M. Esengun, G. Ince</i>	
Technology Concepts to Improve Knowledge Sharing During Maintenance	429
<i>S. Aromaa, I. Aaltonen, A. Vaatanen</i>	
Development of A Finger Mounted Type Haptic Device Using A Plane Approximated to Tangent Plane	436
<i>M. Yoda, H. Imamura</i>	
Author Index	