Contents – Part II

Gesture-Based Interaction

Intelligent Intent-Aware Touchscreen Systems Using Gesture Tracking with Endpoint Prediction ........................................... 3
   Bashar I. Ahmad, Patrick M. Langdon, Robert Hardy, and Simon J. Godsill

A Comparison of Gaze-Based and Gesture-Based Input for a Point-and-Click Task ......................................................... 15
   Dominic Canare, Barbara Chaparro, and Jibo He

Understanding, Evaluating and Analyzing Touch Screen Gestures for Visually Impaired Users in Mobile Environment .................. 25
   Vikas Luthra and Sanjay Ghosh

Touchless Text Entry for All: Initial Design Considerations and Prototypes ................................................................. 37
   Alexandros Mourouzis, Giorgos Arfaras, Vassilis Kilintzis, Ioanna Chouvarda, and Nicos Maglaveras

A Proposed Dynamical Analytic Method for Characteristic Gestures in Human Communication ........................................... 50
   Toshiya Naka and Toru Ishida

Collection and Classification of Gestures from People with Severe Motor Dysfunction for Developing Modular Gesture Interface ............ 58
   Ikushi Yoda, Kazuyuki Itoh, and Tsuyoshi Nakayama

Touch-Based and Haptic Interaction

Reading Comprehension Issues and Individuals with Visual Impairments: The Effects of Using 8-dot and 6-dot Braille Code Through a Braille Display ........................................................................... 71
   Vassilios Argyropoulos, Aineias Martos, Georgios Sideridis, Georgios Kouroupetrogloou, Magda Nikolaraizi, and Maria Papazafiri

Making Blind People Autonomous in the Exploration of Tactile Models: A Feasibility Study ..................................................... 82
   Francesco Buonamici, Rocco Furferi, Lapo Governi, and Yary Volpe

Finding Favorable Textures for Haptic Display ........................................... 94
   Hee Jae Hwang and Da Young Ju
Improving Touchscreen Accessibility in Self-Service Technology ................. 103
Elina Jokisuu, Mike McKenna, Andrew W.D. Smith, and Phil Day

Transparent Touch – Interacting with a Multi-layered Touch-Sensitive Display System .................................................. 114
Andreas Kratky

A Haptic Knob as an Innovative User Interface for Visually-Impaired ........... 127
Maura Mengoni, Lorenzo Cavalieri, and Damiano Raponi

User-Acceptance of Latency in Touch Interactions .............................. 139
Walter Ritter, Guido Kempter, and Tobias Werner

Towards Vibrotactile Direction and Distance Information for Virtual Reality and Workstations for Blind People ...................... 148
Simon Schützle and Bernhard Weber

Improving Accessibility Design on Touchscreens ............................... 161
Shuang Xu

Visual and Multisensory Experience

Senses in Space: Mapping the Universe to the Human Body ................. 177
J. Aguilera

Thinking Outside of the Box or Enjoying Your 2 Seconds of Frame? ........ 186
Per Bækgaard, Michael Kai Petersen, and Jakob Eg Larsen

A Study on Within-Subject Factors for Visually Induced Motion Sickness by Using 8K Display: Through Measurement of Body Sway Induced by Vection While Viewing Images ........................................... 196
Hiromu Ishio, Tatsuya Yamakawa, Akihiro Sugiura, Kazuki Yoshikawa, Takehito Kojima, Shigeru Terada, Kunihiko Tanaka, and Masaru Miyao

Seeing, Hearing and Feeling Through the Body: The Emerging Science of Human-Somatosensory Interactions ........................... 205
Maria Karam and Patrick Langdon

Sensoriality and Conformed Thought ............................................. 217
Silvia Laurentiz

How Different Presentation Modes of Graphical Icons Affect Viewers’ First Fixation and Attention .............................................. 226
Hsuan Lin, Wei Lin, Wang-Chin Tsai, Yu-Chen Hsieh, and Fong-Gong Wu
Numerical Analysis of Body Sway While Viewing a 3D Video Clip
Without Perspective Clues ................................................. 238
Yuki Mori, Yoshiki Maeda, and Hiroki Takada

A Temporal Analysis of Body Sway Caused by Self-Motion During
Stereoscopic Viewing ...................................................... 246
Akihiro Sugiura, Kunihiko Tanaka, Hiroki Takada, Takehito Kojima,
Tatsuya Yamakawa, and Masaru Miyao

Effect of Background Viewing on Equilibrium Systems ............. 255
Hiroki Takada, Yuki Mori, and Toshitake Miyakoshi

Visual Pursuit of Two-Dimensional/Three-Dimensional Objects on Video
Clips: Effects on the Human Body ...................................... 264
Masumi Takada, Masaki Sakai, Masaru Miyao, and Hiroki Takada

Texture Recognition for Users with Color Vision Deficiencies .... 273
Fong-Gong Wu, Erica Huang, and Chao-Yuan Tseng

Measurement of Lens Accommodation During Viewing of DFD Images .... 285
Tatsuya Yamakawa, Hideaki Takada, Munekazu Date, Takehito Kojima,
Ichizo Morita, Yuma Honda, and Masaru Miyao

Effects of Two-Minute Stereoscopic Viewing on Human Balance Function . 297
Kazuki Yoshikawa, Fumiya Kinoshita, Koji Miyashita, Akihiro Sugiura,
Takehito Kojima, Hiroki Takada, and Masaru Miyao

Sign Language Technologies

ASL-Pro: American Sign Language Animation with Prosodic Elements ...... 307
Nicoletta Adamo-Villani and Ronnie B. Wilbur

Design and Development of an Educational Arabic Sign Language Mobile
Application: Collective Impact with Tawasol .......................... 319
Abeer Al-Nafjan, Bayan Al-Arifi, and Areej Al-Wabil

A Context-Based Collaborative Framework to Build Sign Language
Databases by Real Users .................................................... 327
Diego Roberto Antunes, André L.P. Guedes, and Laura Sánchez García

Prototyping and Preliminary Evaluation of Sign Language Translation
System in the Railway Domain ............................................ 339
Cristina Battaglino, Carlo Geraci, Vincenzo Lombardo,
and Alessandro Mazzei

User Friendly Interfaces for Sign Retrieval and Sign Synthesis .......... 351
Eleni Efthimiou, Stavroula-Evita Fotinea, Theodore Goulas,
and Panos Kakoulidis
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Using Computational Resources on Bilingual Deaf Literacy: An Analysis of Benefits, Perspectives and Challenges</td>
<td>362</td>
</tr>
<tr>
<td>Marta Angélica Montiel Ferreira, Juliana Bueno, and Rodrigo Bonacín</td>
<td></td>
</tr>
<tr>
<td>The Low Use of SignWriting Computational Tools from HCI Perspective</td>
<td>373</td>
</tr>
<tr>
<td>Carlos E. A. Iatskiu, Laura Sánchez García, Rafael Dos Passos Canteri, and Diego Roberto Antunes</td>
<td></td>
</tr>
<tr>
<td>The Effect of Rendering Style on Perception of Sign Language Animations</td>
<td>383</td>
</tr>
<tr>
<td>Tiffany Jen and Nicoletta Adamo-Villani</td>
<td></td>
</tr>
<tr>
<td>Comparison of Finite-Repertoire and Data-Driven Facial Expressions for Sign Language Avatars</td>
<td>393</td>
</tr>
<tr>
<td>Hernisa Kacorri and Matt Huenerfauth</td>
<td></td>
</tr>
<tr>
<td>Assessing the Efficiency of Using Augmented Reality for Learning Sign Language</td>
<td>404</td>
</tr>
<tr>
<td>Ines Kožuh, Simon Hauptman, Primož Kosec, and Matjaž Debevc</td>
<td></td>
</tr>
<tr>
<td>Smart and Assistive Environments</td>
<td></td>
</tr>
<tr>
<td>Virtual Interactive Space (VIS): Creating a Unique Dynamic HCI Ludic Engaging Design (Apparatus/Method) for Human Performance and (Re) Habilitation</td>
<td>419</td>
</tr>
<tr>
<td>Anthony Lewis Brooks</td>
<td></td>
</tr>
<tr>
<td>Knowledge, Technology and Intelligence for eInclusion</td>
<td>428</td>
</tr>
<tr>
<td>Laura Burzagli and Pier Luigi Emiliani</td>
<td></td>
</tr>
<tr>
<td>Brain Neural Computer Interface for Everyday Home Usage</td>
<td>437</td>
</tr>
<tr>
<td>Christoph Hintermüller, Eloisa Vargiu, Sebastian Halder, Jean Daly, Felipe Miralles, Hannah Lowish, Nick Anderson, Suzanne Martin, and Günter Edlinger</td>
<td></td>
</tr>
<tr>
<td>Design and Design Thinking to Help the Aged People in Fallen Situations</td>
<td>447</td>
</tr>
<tr>
<td>Jeichen Hsieh</td>
<td></td>
</tr>
<tr>
<td>Automatic Analysis of Speech and Acoustic Events for Ambient Assisted Living</td>
<td>455</td>
</tr>
<tr>
<td>Alexey Karpov, Alexander Ronzhin, and Irina Kipyatkova</td>
<td></td>
</tr>
<tr>
<td>Improving Speech Intelligibility in Classrooms by Decreasing Sound Energy of Low Frequency</td>
<td>464</td>
</tr>
<tr>
<td>Wei Lin, Hsuan Lin, and Kung-Huang Huang</td>
<td></td>
</tr>
<tr>
<td>CanHelp: A Platform for Inclusive Collaboration</td>
<td>474</td>
</tr>
<tr>
<td>Hugo Paredes, Hugo Fernandes, André Sousa, Renata Fortes, Fernando Koch, Vitor Filipe, and João Barroso</td>
<td></td>
</tr>
</tbody>
</table>
Smart Remote Control Design for Seniors ............................................. 484
  António Pereira, Fernando Silva, José Ribeiro, Isabel Marcelino, and João Barroso

An IR View on Lifelogging ................................................................. 496
  Till Plumbaum and Sahin Albayrak

Biologically Inspired Vision for Human-Robot Interaction ...................... 505
  Mario Saleiro, Miguel Farrajota, Kasim Terzić, Sai Krishna, João M.F. Rodrigues, and J.M. Hans du Buf

Engaging Users in Self-Reporting Their Data: A Tangible Interface for Quantified Self ........................................................... 518
  Federico Sarzotti, Ilaria Lombardi, Amon Rapp, Alessandro Marcengo, and Federica Cena

An Electrooculography Analysis in the Time-Frequency Domain Using Morphological Component Analysis Toward the Development of Mobile BCI Systems .......................................................... 528
  Balbir Singh, Guangyi Ai, and Hiroaki Wagatsuma

State-of-the-Art and Future Concepts for Interaction in Aircraft Cockpits .... 538
  Peter Thomas, Pradipta Biswas, and Patrick Langdon

Applying Universal Design Principles to Themes for Wearables .............. 550
  Vladimir Tomberg, Trenton Schulz, and Sebastian Kelle

A Method to Evaluate Intuitive Sense by Using a Robotic Tool: Towards Engineering for Assistive Technology and Accessibility .................. 561
  Gyanendra Nath Tripathi, Hiroaki Wagatsuma, Maya Dimitrova, Maria Vircikova, and Peter Sincák

BioCyberUrban ParQ: Brasilia’s Smart National Park as an Extension of Our Senses ................................................................. 570
  Suzete Venturelli and Francisco de Paula Barretto

Adaptive Sensor Data Fusion for Efficient Climate Control Systems .......... 582
  Matthias Vodel, Marc Ritter, and Wolfram Hardt

Subjective Ratings of Biological Effective Light in Seminar Rooms and How to Handle Small Sample Sizes of Ordinal Data ......................... 594
  Manuel H. Winkler, Herbert Plischke, and Werner Jensch

Author Index ....................................................................................... 605