Contents – Part I

Designing for and with the Elderly

Technologically Mature but with Limited Capabilities ............................. 3
Yvonne Eriksson

Designing Poker Time: Older People as Fixpartners in a Co-design Process ... 13
Linna Hu and Hua Dong

A Preliminary Exploration of Technology Necessities Among Elderly Living Alone ................................................................................. 23
Lin-Ya Huang and Chang-Franw Lee

Understanding the Critical Needs of Older People: An Aging Perspective ... 32
Ying Jiang, Timothy Joseph Jachna, and Hua Dong

Designing Tablet Computers for the Elderly A User-Centered Design Approach ................................ ............................................................... 42
Nicole Jochems

Lowering the Threshold: Reconnecting Elderly Users with Assistive Technology Through Tangible Interfaces ............................................. 52
Suhas Govind Joshi and Heidi Bråthen

Development of the Accessibility Evaluation Platform Beyond Digital Divide. ................................................................................. 64
Junji Ohyama

Scaffolding Digital Game Design Activities Grouping Older Adults, Younger Adults and Teens ................................................................. 74
Margarida Romero and Hubert Ouellet

RERC TechSAge: Making a Difference to the Lives of Older Adults with Disability Through Design and Technology ........................... 82
Jon A. Sanford and Elena T. Gonzalez

To Meet the Needs of Aging Users and the Prerequisites of Innovators in the Design Process: Lessons Learned from Three Pilot Projects .......... 92
Marie Sjölinder, Isabella Scandurra, Anneli Avatare Nöü, and Ella Kolkowska

HCI Challenges for Consumer-Based Aging in Place Technologies ........... 105
Marjorie Skubic, Anup Mishra, Bradford Harris, Carmen Abbott, Andrew Craver, Katy Musterman, and Marilyn Rantz
Towards Characteristics of Accessibility and Usability Issues for Older People - A Brazilian Case Study .............................................. 117
  Sandra Souza Rodrigues, Renata Pontin de Mattos Fortes, and André Pimenta Freire

Board Games and Regulars’ Tables — Extending User Centred Design in the Mobia Project .................................................... 129
  Johannes Tröger, Jan Alexandersson, Jochen Britz, Maurice Rekrut, Daniel Bieber, and Kathleen Schwarz

User Involvement in Design: The Four Models ........................................ 141
  Bin Zhang and Hua Dong

Technology Use and Acceptance by Older Users

Risk and Benefit Perceptions: Resistance, Adoption and Uses of ICT Among the Italian Elderly .................................................. 155
  Simone Carlo and Matteo Vergani

A Tale of Two Divides: Technology Experiences Among Racially and Socioeconomically Diverse Older Adults ............................... 167
  Shelia R. Cotten, Jessica Francis, Travis Kadylak, R.V. Rikard, Tim Huang, Christopher Ball, and Julia DeCook

The Role of Technology in Supporting Family Caregivers ..................... 178
  Sara J. Czaja, Dolores Perdomo, and Chin Chin Lee

Acceptance of Cloud-Based Healthcare Services by Elderly Taiwanese People ................................................................. 186
  Wen-Tsung Ku and Pi-Jung Hsieh

Over 60 and ICT: Exploring Factors that Affect Older Adults’ ICTs Usage ... 196
  Qi Ma, Alan Hoi Shou Chan, Pei-Lee Teh, and Shun-Nam Poon

The Role of Technology Self-efficiency on Technology Product Acceptance and Usage: A Study on Chinese Older People ................ 209
  Jing Pan, Hua Dong, and Weining Ning

The Transformation of Reading Among the Ageing Population in the Digital Age ............................................................ 216
  Dobrinka Peicheva and Lilia Raycheva

Changing Patterns of ICT Use in Finland – The Senior Citizens’ Perspective ................................................................. 226
  Pekka Räsänen and Ilkka Koiranen

Elders’ Perceptions on the Role of ICTs on Their Lives ....................... 238
  Charo Sádaba
A Usability Research for Developing and Deploying Chronic Pain Relief Treatment Applications for Older Adults .................................................. 245  
Wang-Chin Tsai, Chia-Ling Chang, and Cheng-Min Tsai

Understanding Age-Related Differences in Privacy-Safety Decisions: Acceptance of Crime Surveillance Technologies in Urban Environments .... 253  
Julia van Heek, Katrin Arning, and Martina Ziefle

Intentions to Use Smart Textiles in AAL Home Environments: Comparing Younger and Older Adults .......................................................... 266  
Martina Ziefle, Philipp Brauner, and Julia van Heek

Psychological and Cognitive Aspects of Interaction and Aging

Interactive, Multi-device Visualization Supported by a Multimodal Interaction Framework: Proof of Concept ......................................................... 279  
Nuno Almeida, Samuel Silva, Beatriz Sousa Santos, and António Teixeira

The Gamification of Cognitive Training: Older Adults’ Perceptions of and Attitudes Toward Digital Game-Based Interventions ........................................... 290  
Walter R. Boot, Dustin Souders, Neil Charness, Kenneth Blocker, Nelson Roque, and Thomas Vitale

Age-Differentiated Analysis of the Hand Proximity Effect by Means of Eye-Tracking .......................................................... 301  
Christina Bröhl, Sabine Theis, Matthias Wille, Peter Rasche, Alexander Mertens, and Christopher M. Schlick

Combinations of Modalities for the Words Learning Memory Test Implemented on Tablets for Seniors ......................................................... 309  
Erika Hernández-Rubio, Amilcar Meneses-Viveros, Erick Mancera-Serralde, and Javier Flores-Ortiz

Exploring the Antecedents of Technostress and Compulsive Mobile Application Usage: Personality Perspectives ......................................................... 320  
Kuo-Lun Hsiao, Chun-Hsiung Lee, Hsiu-Sen Chiang, and Ju-Yun Wang

Impact of Website Complexity and Task Complexity on Older Adult’s Cognitive Workload on Mobile Devices ......................................................... 329  
Jincheng Huang and Jia Zhou

Experiencing Computer Anxiety Later in Life: The Role of Stereotype Threat .................................................................................. 339  
Loredana Ivan and Ioana Schiau

Control with Hand Gestures by Older Users: A Review ......................................................... 350  
Sheau-Farn Max Liang and Yun-Ju Becker Lee
A Preliminary Study on How the Icon Composition and Background of Graphical Icons Affect Users’ Preference Levels
Hsuan Lin, Yu-Chen Hsieh, and Wei Lin

Tests of Cognitive Training as Archetypes in Elderly People: Identifying Design Categories for Cognitive and Communicative Interaction
Claudia Isabel Rojas R. and Juan Alberto Castillo M.

Eye Movements on Assessing Perceptual Image Quality
Cheng-Min Tsai, Shing-Sheng Guan, and Wang-Chin Tsai

A Study of Human Behavior and Mental Workload Based on Neural Network
Lan Xiao, Jing Qiu, and Jun Lu

Mobile and Wearable Technologies for the Elderly

Designing a Smart Watch Interface for a Notification and Communication System for Nursing Homes
Haneen Ali and Huiyang Li

Tactile Interaction for Novice User: Uncolocated Gestures
Denis Chêne, Vincent Pillot, and Marc-Éric Bobillier Chaumon

Mobile Technology for Older Adults: Protector, Motivator or Threat?
Lynne Coventry and Pam Briggs

The Effect of Screen Size of Mobile Devices on Reading Efficiency
Yu-Chen Hsieh, Chien-Ting Kuo, and Hsuan Lin

Design of Smart Watch for Old People Based on the Benchmark of Consumers’ Kansei Intention
He Huang, Yixiang Wu, Jianxin Cheng, and Minggang Yang

A Study of the Factors Affecting the Usability of Smart Phone Screen Protectors for the Elderly
Shuo-Fang Liu, Ching-Fen Chang, Ming-Hong Wang, and Hsin-Hsi Lai

Effect of Icon Amount and Visual Density on Usability of Smartwatches
Fan Mo, Shuping Yi, and Jia Zhou

Generational Comparison of Simultaneous Internet Activities Using Smartphones and Computers
Andrea Rosales and Mireia Fernández-Ardèvol
Using the Smartphone to Support Successful Aging: Technology Acceptance with Selective Optimization and Compensation
Among Older Adults ......................................................... 490
   Yao Sun, Margaret L. McLaughlin, and Michael J. Cody

Author Index ............................................................... 501
# Contents – Part II

## Smart and Assistive Environments

- Design Research on Self-service Medical Apparatus and Instruments Aiming at Elderly Users. .................................................. 3  
  *Jieqiong Huang*

- Gamification and Information Fusion for Rehabilitation:  
  An Ambient Assisted Living Case Study ........................................... 16  
  *Javier Jiménez Alemán, Nayat Sanchez-Pi, Luis Martí, José Manuel Molina, and Ana Cristina Bicharra García*

- Dynamic Characteristics of the Transformation of Interpersonal Distance in Cooperation ................................................................. 26  
  *Yosuke Kinoe and Nami Mizuno*

- Analysis of Elderly Users’ Preferences and Expectations on Service Robot’s Personality, Appearance and Interaction ..................................... 35  
  *Styliani Kleanthous, Christophoros Christophorou, Christiana Tsiourti, Carina Dantas, Rachelle Wintjens, George Samaras, and Eleni Christodoulou*

- Socio-Technical Challenges in Implementation of Monitoring Technologies in Elderly Care ................................................................. 45  
  *Ella Kolkowska, Anneli Avatare Nöu, Marie Sjölinder, and Isabella Scandurra*

- Developing BIM-Enabled Facility Management Information System in Interior Design ................................................................. 57  
  *Ju-Hung Lan*

- A Study on Re-usage of Historical Building - from the Aspect of Room Acoustic for Live House ................................................................. 70  
  *Wei Lin, Hsuan Lin, Kung-Huang Huang, and Tin-Hang Lin*

- Identification of an Individual’s Frustration in the Work Environment Through a Multi-sensor Computer Mouse ................................................................. 79  
  *David Portugal, Marios Belk, João Quintas, Eleni Christodoulou, and George Samaras*

- Multi-sensory Cyber-Physical Therapy System for Elderly Monitoring ..... 89  
  *Md. Abdur Rahman*
A Virtual Testbed for Studying Trust in Ambient Intelligence Environments . . . 101
Azin Semsar, Morteza Malek Makan, Ali Asghar Nazari Shirehjini, and Zahra Malek Mohammadi

Smart Living for Elderly: Design and Human-Computer Interaction Considerations ................................................................. 112
Ranjana Sharma, Fiona Fui-Hoon Nah, Kayya Sharma, Teja Satya Sai Santosh Katta, Natalie Pang, and Alvin Yong

Usability Assessment of a Virtual Fitness Platform on Smart TV for Elderly Health Promotion .................................................. 123
Chao-Hua Wang

Introduction of Telecare Mediated Home Care Services Pushes Forward a Re-Delegation of the Cooperative Care Work. .......................... 133
Anita Woll

Interaction Design of Products for the Elderly in Smart Home Under the Mode of Medical Care and Pension. ............................... 145
Minggang Yang, He Huang, Haozhou Yuan, and Qichao Sun

Aging and Social Media

Ageism and IT: Social Representations, Exclusion and Citizenship in the Digital Age ................................................................. 159
Ines Amaral and Fernanda Daniel

Elder Adults Utilizing Social Networking Sites on Mobile Platforms . . . 167
Jessica Arfaa and Yuanqiong (Kathy) Wang

The Elderly, IT and the Public Discourse. Representations of Exclusion and Inclusion .............................................................. 176
Piermarco Aroldi and Fausto Colombo

Elderly and IT: Brand Discourses on the Go ............................... 186
Karine Berthelot-Guiet

Using Information and Communication Technologies to Promote Healthy Aging in Costa Rica: Challenges and Opportunities ........................................... 194
María Dolores Castro Rojas, Ann Bygholm, and Tia G.B. Hansen

The Mediations of the Identity of Seniors on IT. The Case of Grand Parenthood .............................................................. 207
Élodie Llobet-Vachias and Yves Jeanneret

Senior Citizens, Digital Information Seeking and Use of Social Media for Healthy Lifestyle ...................................................... 217
Ágústa Pálsdóttir
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concepts, Terms, and Mental Models: Everyday Challenges to Older Adult</td>
<td>227</td>
</tr>
<tr>
<td>Social Media Adoption</td>
<td></td>
</tr>
<tr>
<td><em>Kelly Quinn, Renae Smith-Ray, and Kristin Boulter</em></td>
<td></td>
</tr>
<tr>
<td>Older People’s Use and Learning of New Media: A Case Study on Remote</td>
<td>239</td>
</tr>
<tr>
<td>Rural Villages in Finnish Lapland</td>
<td></td>
</tr>
<tr>
<td><em>Päivi Rasi and Arja Kilpeläinen</em></td>
<td></td>
</tr>
<tr>
<td>Improving User Experience and Engagement for Older Adults: A Case</td>
<td>248</td>
</tr>
<tr>
<td>Study</td>
<td></td>
</tr>
<tr>
<td><em>Krysta Hedia Salera, Pejman Salehi, Neel Desai, Lia E. Tsotsos,</em></td>
<td></td>
</tr>
<tr>
<td><em>and Kathryn Warren-Norton</em></td>
<td></td>
</tr>
<tr>
<td>Understanding Mobile SNS Usage for Aging People in China: A</td>
<td>256</td>
</tr>
<tr>
<td>Perspective from Motivations, Trust and Attitude</td>
<td></td>
</tr>
<tr>
<td><em>Zhongping Zeng, Liu Liu, Ye Han, and Zhaoyin Liu</em></td>
<td></td>
</tr>
</tbody>
</table>

**Aging, Learning, Training and Games**

<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operational Assistance for Elderly People Using a Rhythm System</td>
<td>269</td>
</tr>
<tr>
<td><em>Hiroko Akatsu and Akinori Komatsubara</em></td>
<td></td>
</tr>
<tr>
<td>You Can’t Teach an Old Dog New Tricks: Analyzing the Learnability</td>
<td>277</td>
</tr>
<tr>
<td>of Manufacturing Software Systems in Older Users</td>
<td></td>
</tr>
<tr>
<td><em>Katrin Arning, Simon Himmel, and Martina Ziefle</em></td>
<td></td>
</tr>
<tr>
<td>Designing a Web-Based Application to Train Aging Adults to Successfully Use Technologies Important to Independent Living</td>
<td>289</td>
</tr>
<tr>
<td><em>Ronald W. Berkowsky, Sara J. Czaja, and Philip D. Harvey</em></td>
<td></td>
</tr>
<tr>
<td>Exploring the Relationship Between Computer Proficiency and Computer Use Over Time in the PRISM Trial</td>
<td>300</td>
</tr>
<tr>
<td><em>Walter R. Boot, Joseph Sharit, Sara J. Czaja, Neil Charness,</em></td>
<td></td>
</tr>
<tr>
<td><em>and Wendy A. Rogers</em></td>
<td></td>
</tr>
<tr>
<td>Exploring the Next Generation of Older Gamers: Middle-Aged Gamers</td>
<td>308</td>
</tr>
<tr>
<td><em>Julie A. Brown</em></td>
<td></td>
</tr>
<tr>
<td>Mobile Learning Concepts for Older Adults: Results of a Pilot Study</td>
<td>319</td>
</tr>
<tr>
<td>with Tablet Computers in France and Germany</td>
<td></td>
</tr>
<tr>
<td><em>Eline Leen-Thomele, Sonia Hetzner, and Paul Held</em></td>
<td></td>
</tr>
<tr>
<td>Silver Gaming: Serious Fun for Seniors?</td>
<td>330</td>
</tr>
<tr>
<td><em>Eugène Loos and Annemiek Zonneveld</em></td>
<td></td>
</tr>
<tr>
<td>Teaching Older Adults with Multiple Chronic Conditions to Use a Tablet and Patient Application for Health Management</td>
<td>342</td>
</tr>
<tr>
<td><em>Rony Oosterom-Calo and Benjamin López</em></td>
<td></td>
</tr>
<tr>
<td>Title</td>
<td>Page</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>Family Matters: The Role of Intergenerational Gameplay in Successful Aging</td>
<td>352</td>
</tr>
<tr>
<td>Sanela Osmanovic and Loretta Pecchioni</td>
<td></td>
</tr>
<tr>
<td>Coping with Ageing Issues: Adoption and Appropriation of Technology by Older Adults in Singapore</td>
<td>364</td>
</tr>
<tr>
<td>Natalie Pang, Xue Zhang, Pei Wen Law, and Schubert Foo</td>
<td></td>
</tr>
<tr>
<td><strong>Aging, Mobility and Driving</strong></td>
<td></td>
</tr>
<tr>
<td>Immersive Virtual Reality Simulation as a Tool for Aging and Driving Research</td>
<td>377</td>
</tr>
<tr>
<td>Christopher R. Bennett, Richard R. Corey, Uro Giudice, and Nicholas A. Giudice</td>
<td></td>
</tr>
<tr>
<td>Ensuring the Safety and Accessibility of Transportation for an Aging Population</td>
<td>386</td>
</tr>
<tr>
<td>Walter R. Boot, Kimberly Barajas, Ainsley Mitchum, Cary Stothart, and Neil Charness</td>
<td></td>
</tr>
<tr>
<td>Rethinking Public Transport Services for the Elderly Through a Transgenerational Design Approach</td>
<td>395</td>
</tr>
<tr>
<td>Roberta Grimaldi, Antonio Opromolla, Giovanni Andrea Parente, Eliseo Sciarretta, and Valentina Volpi</td>
<td></td>
</tr>
<tr>
<td>Ayberk Kocatepe, Eren Erman Ozguven, Hidayet Ozel, Mark W. Horner, and Ren Moses</td>
<td></td>
</tr>
<tr>
<td>The Flashing Right Turn Signal with Pedestrian Indication: A Human Factors Study to Assess Driver Comprehension</td>
<td>417</td>
</tr>
<tr>
<td>Nelson A. Roque, Walter R. Boot, Neil Charness, Kimberly Barajas, Jared Dirghalli, and Ainsley Mitchum</td>
<td></td>
</tr>
<tr>
<td>Challenges of Older Drivers’ Adoption of Advanced Driver Assistance Systems and Autonomous Vehicles</td>
<td>428</td>
</tr>
<tr>
<td>Dustin Souders and Neil Charness</td>
<td></td>
</tr>
<tr>
<td>Age Effects on Inattentional Blindness: Implications for Driving</td>
<td>441</td>
</tr>
<tr>
<td>Cary Stothart, Walter Boot, Daniel Simons, Neil Charness, and Timothy Wright</td>
<td></td>
</tr>
<tr>
<td><strong>Author Index</strong></td>
<td>449</td>
</tr>
</tbody>
</table>
Human Aspects of IT for the Aged Population. Design for Aging
Zhou, J.; Salvendy, G. (Eds.)
2016, XXII, 503 p. 152 illus., Softcover
ISBN: 978-3-319-39942-3