Contents

Design and Usability

Designing a Multi-sided Health and Wellbeing Platform: Results of a First Design Cycle ........................................ 3
   W.J.W. Keijzer-Broers, G.A. de Reuver, and N.A. Guldemond

Design and Usability of a Smart Home Sensor Data User Interface for a Clinical and Research Audience ........................................ 13
   Mary Sheahen and Marjorie Skubic

EasiSocial: An Innovative Way of Increasing Adoption of Social Media in Older People ........................................ 21
   Kyle Boyd, Chris Nugent, Mark Donnelly, Roy Sterritt, Raymond Bond, and Lorraine Lavery-Bowen

Agile Development for the Creation of Proper Human-Computer Interfaces for the Elderly ........................................ 29
   Drew Williams, Mong-Te Wang, Chih-Hung Chang, Sheikh Iqbal Ahamed, and William Chu

Assistive and Sentient Environments

Testing Real-Time In-Home Fall Alerts with Embedded Depth Video Hyperlink ........................................ 41
   Erik E. Stone and Marjorie Skubic

ShowMeHow: Using Smart, Interactive Tutorials in Elderly Software Development ........................................ 49
   Drew Williams, Mong-Te Wang, Chih-Hung Chang, Sheikh Iqbal Ahamed, and William Chu

Actimetry@home: Actimetric Tele-surveillance and Tailored to the Signal Data Compression ........................................ 59
   Jacques Demongeot, Olivier Hansen, Ali Hamie, Hana Hazgui, Gilles Virone, and Nicolas Vuillerme

Monitoring Patient Recovery Using Wireless Physiotherapy Devices ........................................ 71
   Nirmalya Roy and Brooks Reed Kindle
## Cognitive Technology

Comparison of Two Prompting Methods in Guiding People with Traumatic Brain Injury in Cooking Tasks ................................. 83  
*Jing Wang, Harshal Mahajan, Pamela Toto, Ashlee McKeon, Michael McCue, and Dan Ding*

A Collaborative Patient-Carer Interface for Generating Home Based Rules for Self-Management .............................................. 93  
*Mark Beattie, Josef Hallberg, Chris Nugent, Kare Synnes, Ian Cleland, and Sungyoung Lee*

Measuring the Impact of ICTs on the Quality of Life of Ageing People with Mild Dementia .................................................... 103  
*Mounir Mokhtari, Romain Endelin, Hamdi Aloulou, and Thibaut Tiberghien*

VA SmartHome for Veterans with TBI: Implementation in Community Settings .......................................................... 110  
*Kristina M. Martinez, Karen M. Mann, Christina Dillahunt-Aspillaga, Jan M. Jasiewicz, Deborah Rugs, Yorick Wilks, and Steven G. Scott*

## Activity Recognition

Regression Analysis for Gesture Recognition Using RFID Technology ...... 121  
*Kevin Bouchard, Bruno Bouchard, and Abdenour Bouzouane*

Improving Activity Recognition in Smart Environments with Ontological Modeling ......................................................... 129  
*Zachary Wemlinger and Lawrence Holder*

Remote Monitoring Using Smartphone Based Plantar Pressure Sensors: Unimodal and Multimodal Activity Detection ......................... 138  
*Ferdaus Kawsar, Sheikh Ahamed, and Richard Love*

Mining for Patterns of Behaviour in Children with Autism Through Smartphone Technology .............................................. 147  
*William Burns, Mark Donnelly, and Nichola Booth*

## Context and Situation Awareness

Ontology Based Context Fusion for Behavior Analysis and Prediction .......... 157  
*Asad Masood Khattak, Amjad Usman, and Sungyoung Lee*

Quantifying Semantic Proximity Between Contexts .............................. 165  
*Patrice Roy, Bessam Abdulrazak, and Yacine Belala*
Emotion Aware System for the Elderly ............................... 175
Hai Yu, Celine Maria Amrita Anthony Sunderraj, Carl K. Chang,
and Johnny Wong

Health IT

Dual Locks: Partial Sharing of Health Documents in Cloud ............. 187
Mahmood Ahmad, Zeeshan Pervez, and Sungyoung Lee

Biomedical Ontology Matching as a Service .............................. 195
Muhammad Bilal Amin, Mahmood Ahmad, Wajahat Ali Khan,
and Sungyoung Lee

Short Contributions

Action Prediction in Smart Home Based on Reinforcement Learning ...... 207
Marwa Hassan and Mirna Atieh

A Mobile Survey Tool for Smoking Dependency Among Native Americans ... 213
Golam Mushih Tanimul Ahsan, Drew Williams, Ivor D. Addo,
S. Iqbal Ahamed, Daniel Peteret, Linda Burhansstipanov,
Linda U. Krebs, and Mark Dignan

Smart Built Environments and Independent Living: A Public
Health Perspective .......................................................... 219
Blaine Reeder, George Demiris, and Hilaire J. Thompson

iCanLearn: A Mobile Application for Creating Flashcards and Social Stories™
for Children with Autism .................................................. 225
Aaron Zaffke, Niharika Jain, Norah Johnson, Mohammad Arif Ul Alam,
Marta Magiera, and Sheikh Iqbal Ahamed

A Comparison Between Ambient Assisted Living Systems .................. 231
Molham Darwish, Eric Senn, Christophe Lohr, and Yvon Kermarrec

Access My Campus .................................................................. 238
Kevin Michael Amaral, Ping Chen, William S. Carter, and John Sanchez

Immersive Physiotherapy: Challenges for Smart Living Environments
and Inclusive Communities .................................................... 242
Nirmalya Roy and Christine Julien

Evaluation of the Barthel Index Presented on Paper and Developed Digitally ... 249
Elizabeth Sarah Martin, Chris Nugent, Raymond Bond, and Suzanne Martin
Smart Homes and Health Telematics
12th International Conference, ICOST 2014, Denver, CO, USA, June 25–27, 2014, Revised Papers
Bodine, C.; Helal, S.; Gu, T.; Mokhtari, M. (Eds.)
2015, XXII, 262 p. 78 illus., Softcover
ISBN: 978-3-319-14423-8