Contents – Part III

Information Design

An Interactive Behavior-Based Hierarchical Design Method for Form Hints .................................................. Cao Huai and Zhou Qi 3

Usability Modeling of Academic Search User Interface ............... Tsangyao Chen and Melissa Gross 16

The Influence of Task-Oriented Human-Machine Interface Design on Usability Objectives .............................. Julia N. Czerniak, Christopher Brandl, and Alexander Mertens 31

ViVid: A Video Feature Visualization Engine ....................... Jianyu Fan, Philippe Pasquier, Luciane Maria Fadel, and Jim Bizzocchi 42

Comparison of Circle and Dodecagon Clock Designs for Visualizing 24-Hour Cyclical Data ......................... Chen Guo, Shuang Wei, Mingran Li, Zhenyu Cheryl Qian, and Yingjie Victor Chen 54

Design of Tooltips for Data Fields: A Field Experiment of Logging Use of Tooltips and Data Correctness ........................... Helene Isaksen, Mari Iversen, Jens Kaasbøll, and Chipo Kanjo 63

The Application of Multi-view and Multi-task Learning for On-Board Interaction Design Based on Visual Selection .................................................. Bin Jiang, JiangHui Ma, and Di Zhou 79

Research on the Experience Design of Chinese Knowledge Sharing in the Information Age .......................... Wenkui Jin, Renke He, and Xinxin Sun 94

The Effect of Video Loading Symbol on Waiting Time Perception ........ Woojoo Kim and Shuping Xiong 105

Research on Image Emotional Semantic Retrieval Mechanism Based on Cognitive Quantification Model ................ Tian Liang, Liqun Zhang, and Min Xie 115

A Recommender System for Political Information Filtering ................... Kevin Lim, Chungwhan Kim, Gangsan Kim, and Hyebong Choi 129
Look at My Face: A New Home Screen User Interface ........................................ 146
Young Hoon Oh and Da Young Ju

Understanding the User

Extending the Concept of User Satisfaction in E-Learning Systems
from ISO/IEC 25010 ................................................................. 167
Andrés F. Aguirre, Ángela Villareal-Freire, Rosa Gil,
and César A. Collazos

The International Effect of the Convention on Rights of Persons
with Disabilities on Access in Society and Information .......................... 180
Leo Baldiga, Jacob Gattuso, Sophia Baker, Holly Gruber,
and Phillip J. Deaton

Coffee Cup Reading as an Inspiration for Looking into Augmented Mugs
in Social Interaction .......................... 199
Ahmet Börütecene, İdil Bostan, Gülben Şanlı, Çağlar Genç,
Tilbe Göksun, and Öğuzhan Özcan

A LifeLike Experience to Train User Requirements Elicitation Skills.......... 219
Silvia De Ascaniis, Lorenzo Cantoni, Erkki Sutinen, and Robert Talling

Comfortable Subjective Duration and User Experience of Face Recognition... 238
Tingting Gan and Chengqiang Yi

Taiwanese People’s Wayfinding Personas and Tool Preferences ................ 249
Chih-Wei Joy Lo, Chia-Ning Liao, I-Ping Chen, and Tsuei-Ju Hsieh

The Role of Narrative Transportation Experience in Design Communication .... 265
Qiong Peng and Jean-Bernard Martens

A Requirements Engineering Process for User Centered IT Services – Gathering
Service Requirements for the University of the Future ............................. 275
Dominik Rudolph, Anne Thoring, Christian Remfert, and Raimund Vogl

Understanding Voting Barriers to Access for Americans
with Low Literacy Skills ........................................................................ 294
Kathryn Summers, Jonathan Langford, Caitlin Rinn, Joel Stevenson,
Emily Rhodes, Jaime Lee, and Rachel Sherard

Bifurcating the User ........................................................................... 313
Nicholas True, Shad Gross, Chelsea Linder, Amber McAlpine,
and Sri Putrevu

The Challenges Found in the Access to Digital Information by People
with Visual Impairment ....................................................................... 330
Karolina Vieira da Silva Bastos and Ivette Kafure Muñoz
How the Inhabited Space Helps Consumers Customize Good Products . . . . . . 347
   Liang Zhou and Kanliang Wang

**DUXU for Children and Young Users**

*Teenagers’* Destination Website Navigation. A Comparison Among
Eye-Tracking, Web Analytics, and Self-declared Investigation . . . . . . . . . . . 359
   Edoardo Cantoni, Elena Marchiori, and Lorenzo Cantoni

Using Storytelling to Support the Education of Deaf Children:
A Systematic Literature Review . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 371
   Leandro Flórez Aristizábal, Sandra Cano, and César Collazos

Research on Online Education Products Designed for Chinese Young
Women’s Interest Development . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 383
   Xuan Li, Jingya Zhang, Qijun Chen, Nan Wang, and Yi Yang

Technology as an Extension of the Self: Socialising Through Technology
for Young People with Autism . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 393
   Lye Ee Ng

Service Design for Improving Adolescents’ Cyber Language Habit . . . . . 403
   Jae Sun Yi, Chanmi Jeon, and Yeji Yu

Let’s Play (While Far Away)! Using Technology to Mediate Remote
Playdates for Children with Autism . . . . . . . . . . . . . . . . . . . . . . . . . . . . 415
   Anuska Zolyomi, Ankitha Bharadwaj, and Jaime Snyder

**DUXU for Art, Culture, Tourism and Environment**

Perception of Source Credibility Within Touristic Virtual Communities:
A Cross-Generational Examination . . . . . . . . . . . . . . . . . . . . . . . . . . . . 435
   Aleksander Groth, Giulietta Constantini, and Stephan Schlögl

Gender Differences in Tourism Website Usability: An Empirical Study . . . . . 453
   Zhao Huang and Liu Yuan

Energy UX: Leveraging Multiple Methods to See the Big Picture . . . . . . . . . . 462
   Beth Karlin, Sena Koleva, Jason Kaufman, Angela Sanguinetti,
   Rebecca Ford, and Colin Chan

Optimizing User Interface Design and Interaction Paths for a Destination
Management Information System . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 473
   Dimitri Keil, Wolfram Höpken, Matthias Fuchs, and Maria Lexhagen

Modeling a Systematic-Innovation Approach for Green Product Design . . . . . 488
   Yao-Tsung Ko, Meng-Cong Zheng, and Chi-Hung Lo
Cultural Calibration: Technology Design for Tourism Websites .......................... 501
  Emanuele Mele and Erkki Sutinen

“deBallution” - A Prototype of Interactive Artwork Based on Cultural Heritage ............................................. 514
  Je-ho Oh, So-young Kim, Yun Tae Nam, and Chung-kon Shi

Research on the Design of Nanjing Museum Cultural and Creative Product from the Perspective of Experience ........................................................ 529
  Xinxin Sun, Wenkui Jin, and Chao Li

An Exploratory Case Study into Curatorial Intervention Within the Context of HCI .................................................. 540
  Deborah Turnbull Tillman, Jorge Forseck, and Mari Velonaki

**DUCTU Practice and Case Studies**

The Role of UX in Government System Expansion ........................................................ 559
  Fuad Abujarad, Ian O’Bara, Sarah J. Swierenga, and Eric D. Ratle

Pervasive Information Architecture and Media Ecosystem: A Brazilian Video on Demand User Experience ...................................................... 570
  Luiz Agner, Barbara Jane Necyk, and Adriano Bernardo Renzi

Simplified Thermal Comfort Evaluation on Public Busses for Performance Optimization ..................................................... 581
  Guilherme Valle Loures Brandão, Wilian Daniel Henriques do Amaral, Caio Augusto Rabite de Almeida, and Jose Alberto Barroso Castaño

Shaping the Experience of a Cognitive Investment Adviser ............................... 594
  Heloisa Candelio, Claudio Pinhanez, David Millen, and Bruna Daniele Andrade

User Experience Evaluation for User Interface Redesign: A Case Study on a Bike Sharing Application ......................... 614
  Jonas Forte and Ticianne Darin

Teleconsultation Process for Physicians Working with ASD Patients:
  Insights from a Usability Evaluation .......................................................... 632
    Jennifer Ismirle, Hannah Klautke, Sarah J. Swierenga, and Lauren O’Connell

Visual Standards for Southern California Tsunami Evacuation Information:
  Applications of Information Design in Disaster Risk Management ................ 645
    Claudine Jaenichen and Steve Schandler
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>SmartPA: An Electronic Solution for Secure Prior Authorization Processing</td>
<td>664</td>
</tr>
<tr>
<td>Ramandeep Kaur, Patricia Morreale, and Marvin Andujar</td>
<td></td>
</tr>
<tr>
<td>Research on the Cognitive Evaluation Method of Subway Signs Design</td>
<td>677</td>
</tr>
<tr>
<td>in the Aging Society</td>
<td></td>
</tr>
<tr>
<td>Jian Liu, Jian Dai, Yanrui Qu, Zhenwei You, Xiaochun Wang,</td>
<td></td>
</tr>
<tr>
<td>and Junfeng Cui</td>
<td></td>
</tr>
<tr>
<td>Developing an ATM Interface Using User-Centered Design Techniques</td>
<td>690</td>
</tr>
<tr>
<td>Arturo Moquillaza, Edward Molina, Edilson Noguera, Leidi Enriquez,</td>
<td></td>
</tr>
<tr>
<td>Adrián Muñoz, Freddy Paz, and César Collazos</td>
<td></td>
</tr>
<tr>
<td>Challenges to Patient Experience: Documenting Evidence-Based Practice</td>
<td>702</td>
</tr>
<tr>
<td>in the Family Health Center</td>
<td></td>
</tr>
<tr>
<td>Dawn S. Opel and William Hart-Davidson</td>
<td></td>
</tr>
<tr>
<td>The Labor Judicial Expert from Sergipe State, Brazil and Propositions</td>
<td>713</td>
</tr>
<tr>
<td>of Use of Tools Ergonomic in the Sustenance of Causal Connections</td>
<td></td>
</tr>
<tr>
<td>in Disturbances Bone-Muscle</td>
<td></td>
</tr>
<tr>
<td>Marcos André Santos Guedes, Maria Goretti Fernandes,</td>
<td></td>
</tr>
<tr>
<td>and Marcelo Marcio Soares</td>
<td></td>
</tr>
<tr>
<td>The Open University of the Unified Health System in Brazil</td>
<td>724</td>
</tr>
<tr>
<td>(UNA-SUS/UFMA): Identification and Hierarchization</td>
<td></td>
</tr>
<tr>
<td>of Problems in Distance Learning Courses</td>
<td></td>
</tr>
<tr>
<td>Carla Galvão Spinillo, Stephania Padovani, Kelli C.A.S. Smythe,</td>
<td></td>
</tr>
<tr>
<td>Juliana Bueno, and Ana Emilia Figueiredo de Oliveira</td>
<td></td>
</tr>
<tr>
<td>Case Study: Building UX Design into Citizen Science Applications</td>
<td>740</td>
</tr>
<tr>
<td>Brian Traynor, Tracy Lee, and Danah Duke</td>
<td></td>
</tr>
<tr>
<td>Participatory Design in the Development of a Smart Pedestrian Mobility</td>
<td>753</td>
</tr>
<tr>
<td>Device for Urban Spaces</td>
<td></td>
</tr>
<tr>
<td>Wiktoria Wilkowska, Katrin Arning, and Martina Zieflle</td>
<td></td>
</tr>
<tr>
<td>Service Design for Inter Floor Noise Problem: Using a Floor Noise</td>
<td>773</td>
</tr>
<tr>
<td>Reduction Device Technology and Network System in Apartment Complex</td>
<td></td>
</tr>
<tr>
<td>Jae Sun Yi, Seona Kim, and Hahyeon Sung</td>
<td></td>
</tr>
<tr>
<td>Analysis of Users’ Mental Model and Expectations from Usability</td>
<td>784</td>
</tr>
<tr>
<td>and Information Design Point of View in e-Contracts: A Case</td>
<td></td>
</tr>
<tr>
<td>of Hotel Reservation</td>
<td></td>
</tr>
<tr>
<td>Renata Zappelli Marzullo, André Ribeiro Oliveira,</td>
<td></td>
</tr>
<tr>
<td>and Adriano Bernardo Renzi</td>
<td></td>
</tr>
<tr>
<td><strong>Author Index</strong></td>
<td>805</td>
</tr>
</tbody>
</table>
## Contents – Part I

### Design Thinking and Design Philosophy

<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Towards Establishing Design Principles for Balancing Usability and Maintaining Cognitive Abilities</td>
<td>3</td>
</tr>
<tr>
<td>Gayathri Balasubramanian, Hyowon Lee, King Wang Poon, Wee-Kiat Lim, and Wai Keet Yong</td>
<td></td>
</tr>
<tr>
<td>User Operational Design Thinking</td>
<td>19</td>
</tr>
<tr>
<td>Peipei Cai</td>
<td></td>
</tr>
<tr>
<td>Disappearing Boundary</td>
<td>28</td>
</tr>
<tr>
<td>Wai Ping Chan</td>
<td></td>
</tr>
<tr>
<td>Investigating User Interpretation of Dynamic Metaphorical Interfaces</td>
<td>45</td>
</tr>
<tr>
<td>Kenny K.N. Chow</td>
<td></td>
</tr>
<tr>
<td>Thinking in Interdisciplinary Design Teams Based on Workshop</td>
<td>60</td>
</tr>
<tr>
<td>Ying Hu, Ying Li, and Xing Du</td>
<td></td>
</tr>
<tr>
<td>Digitization of the Design Thinking Process Solving Problems with Geographically Dispersed Teams</td>
<td>71</td>
</tr>
<tr>
<td>Christoph Lattemann, Dominik Siemon, David Dorawa, and Beke Redlich</td>
<td></td>
</tr>
<tr>
<td>Processless Design Extended</td>
<td>89</td>
</tr>
<tr>
<td>Joon-Suk Lee</td>
<td></td>
</tr>
<tr>
<td>The Categorization of Document for Design Thinking</td>
<td>100</td>
</tr>
<tr>
<td>Tingyi S. Lin and Min-Zhe Yi</td>
<td></td>
</tr>
<tr>
<td>Internet Product Design Is the Whole Design Around the “Product Strategy”</td>
<td>114</td>
</tr>
<tr>
<td>Chao Liu</td>
<td></td>
</tr>
<tr>
<td>Reflection on Exploring and Designing Generation Y Interaction Qualities</td>
<td>122</td>
</tr>
<tr>
<td>Wei Liu</td>
<td></td>
</tr>
<tr>
<td>Design-Based Evidence Collection and Evidence-Based Design (DEED) Model</td>
<td>134</td>
</tr>
<tr>
<td>Caitlyn McColeman, Robin Barrett, and Mark Blair</td>
<td></td>
</tr>
</tbody>
</table>
Information Behaviour in Design; A Conceptual Framework

Farnaz Nickpour

Four Biases in Interface Design Interactions

Alamir Novin and Eric M. Meyers

Fire in the Kitchen: The Campfire Experience that Led to Innovation in Human Product Interaction

Marlen Promann

User Participatory Methods for Inclusive Design and Research in Autism: A Case Study in Teaching UX Design

Debra Satterfield and Marc Fabri

Constructing Cognitive Pattern in Design Thinking Based on Complementary Perspective

Xiaoxian Wang

Aesthetics and Perception in Design

U-index: An Eye-Tracking-Tested Checklist on Webpage Aesthetics for University Web Spaces in Russia and the USA

Svetlana S. Bodrunova and Alexander V. Yakunin

An Association Analysis Between Content Topic and Appeal Type of Infographics

Tzu-Fan Hsu

Automatic Information Loss Detection and Color Compensation for the Color Blind

Sung Soo Hwang

Research on the Form Design of Mini Car in Perceptual Consumption Times

Xinhui Kang, Minggang Yang, Weiwei Yang, and Yixiang Wu

The Effects of Website White Space on University Students

Yu-Chun Liu and Chih-Hsiang Ko

Research on the Effect of Visual Conventions on Perception and Inference

Ningyue Peng, Chengqi Xue, Haiyan Wang, Yafeng Niu, and Yingjie Victor Chen

Research on the Style of Product Shape Based on NURBS Curve

Zhangfan Shen, Chengqi Xue, Jing Zhang, and Haiyan Wang
A Quantitative Study of Emotional Experience of Daqi Based on Cognitive Integration ................................................................. 306
        Min Xie, Liqun Zhang, and Tian Liang

User Experience Evaluation Methods and Tools

Bringing Content Understanding into Usability Testing in Complex Application Domains—a Case Study in eHealth .......................... 327
        Simon Bruntse Andersen, Claire Kirchert Rasmussen, and Erik Frøkjær

The Use of Neurometric and Biometric Research Methods in Understanding the User Experience During Product Search of First-Time Buyers in E-Commerce .............................................................. 342
        Tuna Çakar, Kerem Rizvanoğlu, Özgür Öztürk, Deniz Zengin Çelik, and İrfan Gürvardar

ErgoMobile: A Software to Support Usability Evaluations in Mobile Devices Using Observation Techniques ................................. 363
        Thiago Adriano Coleti, Leticia da Silva Souza, Marcelo Morandini, Suzie Allard, and Pedro Luiz Pizzigatti Correa

Addressing Mobile Usability and Elderly Users: Validating Contextualized Heuristics ................................................................. 379
        André de Lima Salgado, Leandro Agostini do Amaral, Renata Pontin de Mattos Fortes, Marcos Hortes Nisihara Chagas, and Ger Joyce

Is a Holistic Criteria-Based Approach Possible in User Experience?: Study of the Classification of 58 Criteria Linked to UX .................. 395
        Josefina Isabel Gil Urrutia, Eric Brangier, and Laurent Cessat

Mobile Application Usability Heuristics: Decoupling Context-of-Use ................................................................. 410
        Ger Joyce, Mariana Lilley, Trevor Barker, and Amanda Jefferies

Developmental Process of Interface Design Evaluations ................................................................. 424
        Lucila Mercado Colin and Alejandro Rodea Chávez

Usability Testing as a Complement of Heuristic Evaluation: A Case Study ................................................................. 434
        Braulio Murillo, Silvia Vargas, Arturo Moquillaza, Luis Fernández, and Freddy Paz

What Drives Perceived Usability in Mobile Web Design: Classical or Expressive Aesthetics? ................................. 445
        Kiemute Oyibo and Julita Vassileva
Application of the Semiotic Inspection Method: A Case Study in Web Domain ................................................................. 463
   Freddy Paz, Freddy A. Paz, Luis Collantes, Manuel Sánchez,
   and José Antonio Pow-Sang

UX Heuristics for Cross-Channel Interactive Scenarios .................. 481
   Adriano Bernardo Renzi

A Systematic Review of User Experience Evaluation Methods in Information Driven Websites ................................................. 492
   Ana Cecilia Ten and Freddy Paz

The UX Metrics Table: A Missing Artifact. .................................... 507
   Dieter Wallach, Jan Conrad, and Toni Steimle

Research on “4D” Evaluation System Construction for Information Interaction Design ................................................................. 518
   Yangshuo Zheng and Yongzhen Zou

**User Centered Design in the Software Development Lifecycle**

Converging Data with Design Within Agile and Continuous Delivery Environments ................................................................. 533
   Jay Brewer, Ger Joyce, and Saurabh Dutta

Model-Based HCI System Development Methodology .......................... 543
   Kyung Won Cha and Changbeom Choi

Integrating Participatory and Interaction Design of an Authoring Tool for Learning Objects Involving a Multidisciplinary Team .................. 554
   André Luiz de Brandão Damasceno, Carlos de Salles Soares Neto,
   and Simone Diniz Junqueira Barbosa

A Human-Centered Perspective on Software Quality: Acceptance Criteria for Work 4.0 ................................................................. 570
   Holger Fischer, Michael Engler, and Stefan Sauer

Building a Team to Champion User-Centered Design Within an Agile Process ................................................................. 584
   Eleonora Ibragimova, Leanda Verboom, and Nick Mueller

Prototype-Centric Explorative Interaction Design Approach in the Case of Office Energy Coaches Projects ................................. 597
   Tomasz Jaskiewicz, Aadjan van der Helm, and Wei Liu

UCD and Agile Methodology in the Development of a Cultural Heritage Platform ................................................................. 614
   Eduardo Merino, Claudia Zapata, and Maria del Carmen Aguilar
Research on Interactive Prototype Design and Experience Method Based on Open Source ................................. 633
  Yanrui Qu, Yanhong Jia, Tong Qu, Zhaoyu Chen, Heng Li, and Wanqiang Li

Programming a Robotic Toy with a Block Coding Application: A Usability Study with Non-programmer Adults .................. 652
  Muhammet Ramoğlu, Çağlar Genç, and Kerem Rıvançoğlu

IT Governance for Cyber-Physical Systems: The Case of Industry 4.0 ........ 667
  Maximilian Savtschenko, Frederik Schulte, and Stefan Voß

Relationship Between the Scientific and Traditional Software Engineering Considering the Ethical Aspects of Human-Computer Interaction ............ 677
  Natalie Mie Takahashi and Plinio Thomaz Aquino Jr.

Technical to Teachable: The Flint Water Crisis and the Design of Instructions for Assembling Water Sampling Kits ............... 697
  Audrey R. Zarb, Shawn P. McElmurry, and Judith A. Moldenhauer

**DU Xu Education and Training**

Using Prototyping in Authentic Learning of Human-Centred Design of Mobile Apps ........................................ 713
  Ghislain Maurice Norbert Isabwe, Hellen Mula Apondi Olum, and Maren Schelbred Thormodsæter

Collaborative System for Generative Design: Manipulating Parameters, Generating Alternatives ................................. 727
  Luisa Paraguai, Heloisa Candello, and Paulo Costa

  Hanne Sørum

Creativity in Digital Design: Differences from Print-Based Graphic Design .......................... 755
  Virginia Tiradentes Souto

Establishing China’s First UX Master Program Based on Applied Psychology Perspective ........................................ 767
  Shuping Sun and Limei Teng

Knowledge Graph Design: A Way to Promote User Experience for Online Education .................. 776
  Wentao Wang and Qi Feng

**Author Index** ........................................ 787
## Contents – Part II

**Persuasive and Emotional Design**

<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mix and Match: Designing an Installation for Music Festivals Aiming to Increase Social Sustainability</td>
<td>3</td>
</tr>
<tr>
<td>Vlad-Doru Epure, Beatrix Ivicsics, István Kovács, Louise Skjoldborg Lessel, Nikolaj Schlüter Nielsen, Jakob Ranum, and Evangelia Triantafyllou</td>
<td></td>
</tr>
<tr>
<td>Explore the Categories on Different Emotional Branding Experience for Optimising the Brand Design Process</td>
<td>18</td>
</tr>
<tr>
<td>Amic G. Ho</td>
<td></td>
</tr>
<tr>
<td>Guiding Human Behavior Through Alternate Reality Experience</td>
<td>35</td>
</tr>
<tr>
<td>Fumiko Ishizawa and Tatsuo Nakajima</td>
<td></td>
</tr>
<tr>
<td>A Quality Table-Based Method for Sentiment Expression Word Identification in Japanese</td>
<td>48</td>
</tr>
<tr>
<td>Shujiro Miyakawa, Fumiaki Saitoh, and Syohei Ishizu</td>
<td></td>
</tr>
<tr>
<td>EcoTrips: Leveraging Co-benefits and Metaphorical Metrics in a Mobile App to Promote Walking and Biking for Short Trips</td>
<td>60</td>
</tr>
<tr>
<td>Hannah Park, Angela Sguininetti, and Gabriel Castillo Cortes</td>
<td></td>
</tr>
<tr>
<td>Experience, Usability and Sense of Things</td>
<td>77</td>
</tr>
<tr>
<td>Axel Sande, Adriano Bernardo Renzi, and Silvia Schnaider</td>
<td></td>
</tr>
<tr>
<td>GreenFLY: Adding Carbon to the Equation in Online Flight Searches</td>
<td>87</td>
</tr>
<tr>
<td>Angela Sguininetti, Andrew Kwon, Yitong Li, Vishal Chakraborty, Suhaila Sikand, Otavio Tarelho, Ying Chen, and Nina Amenta</td>
<td></td>
</tr>
<tr>
<td>Electric Vehicle Explorer: Educating and Persuading Consumers with an Online Vehicle Energy Cost Calculator</td>
<td>104</td>
</tr>
<tr>
<td>Angela Sguininetti, Kiernan Salmon, Mike Nicholas, Gil Tal, and Matt Favetti</td>
<td></td>
</tr>
<tr>
<td>Beyond Hedonic Enjoyment: Conceptualizing Eudaimonic Motivation for Personal Informatics Technology Usage</td>
<td>119</td>
</tr>
<tr>
<td>Ayoungh Suh and Christy M.K. Cheung</td>
<td></td>
</tr>
<tr>
<td>A Suggestion to Improve User-Friendliness Based on Monitoring Computer User’s Emotions</td>
<td>134</td>
</tr>
<tr>
<td>Keum Young Sung</td>
<td></td>
</tr>
</tbody>
</table>
EMOVLE: An Interface Design Guide: Through the Design of Emotive Virtual Learning Environments .................................................. 142
Angela Villareal-Freire, Andrés F. Aguirre, and César A. Collazos

Auditory User Interface Guideline for Emotional User Experience. ........ 162
Hoon Sik Yoo and Da Young Ju

Reassurance Experience Design for “Financial Planning Users” .......... 170
Yang Zhang and Pengbo Zhu

Mobile DUXU

Towards Designing Mobile Banking User Interfaces for Novice Users ...... 181
Victor Ndako Adama, Ibrahim Shehi Shehu, Solomon Adelowo Adepoju, and Rasheed Gbenga Jimoh

Feasibility of Utilizing E-Mental Health with Mobile APP Interface for Postpartum Depression in Taiwan .............................. 198
Wen-Ko Chiou, Chun-Ying Kao, Liang-Ming Lo, Ding-Hau Huang, Ming-Hsu Wang, and Bi-Hui Chen

Exploring the Interaction Between Visual Flux and Users on Mobile Devices ................................................................. 208
Shih-Wen Hsiao and Yi-Cheng Tsao

New Mobile Service Development Process .................................... 221
Hans-Peter Hutter and Andreas Ahlenstorf

Designing User Experiences of Novel Technologies ...................... 233
Masayuki Ihara, Takayuki Adachi, and Hiroshi Watanabe

Do Car Drivers Really Need Mobile Parking Payment?: A Critical Evaluation of the Smart Service apparkB in Barcelona ......... 241
Aylin Ilhan, Kaja J. Fietkiewicz, and Wolfgang G. Stock

The Study of Factors Affecting Minimum Center Distance of Mobile Touch Screen ............................................................. 255
Hong Ji, Jingqin He, Hong Sun, and Jie Yin

Mobile Phone – Offers Exchanged as Cultural Practice .................... 262
Arminda Guerra Lopes

The Smartwatch in Multi-device Interaction .................................. 275
Donald McMillan

The Interaction Design of Mobile Apps for Chinese Early Education ... 288
Qiong Peng
Breaking Through the Traditional Form of News Communication—User Experience Design of Live Broadcast .......................... 300
Xueting Xie

Innovation Design in Personal Center Interface of Mobile Application .......................... 310
Xin Xin, Wei Zhou, Mengfan Li, Haozhi Wang, Han Xu, Yuwei Fan, Weizheng Ma, and Di Zhu

Applying Working Memory Theory to Redesign a Mobile Application User Interface: Take a Handicraft Self-learning Page as an Example .......................... 324
Jun Xu, Sicong Liu, and Xiaozhen Fu

Designing the Playing Experience

A Systematic Review of Geolocated Pervasive Games: A Perspective from Game Development Methodologies, Software Metrics and Linked Open Data ........... 335
Jeferson Arango-López, Cesar A. Collazos, Francisco Luis Gutiérrez Vela, and Luis F. Castillo

A Conceptual Model for Educational Game Authoring: A Showcase in Math Games ................ 347
Johan Baldeón, Anna Puig, Inmaculada Rodríguez, Cristian Muriel, and Leandro Zardain

The Shape of Challenge: Using Affordance Design to Create Challenge Within Games ........ 362
Michael Brandse

Co-designing a Civic Educational Online Game with Children ................ 377
Ana Claudia da Costa, Francisco Rebelo, and Antônio Rodrigues

Improving the Usability in a Video Game Through Continuous Usability Evaluations .................. 387
Corrado Daly, Claudia Zapata, and Freddy Paz

Connecting Through Kinect: Designing and Evaluating a Collaborative Game with and for Autistic Individuals .................. 398
Kristen Gillespie, Gabriel Goldstein, David Shane Smith, Ariana Riccio, Michael Kholodovsky, Cali Merendino, Stanislav Leskov, Rayan Arab, Hassan Elsherbini, Pavel Asanov, and Deborah Sturm

Engagement in a Virtual Reality Game with Gesture Hand Interface. An Empirical Evaluation of User Engagement Scale (UES) ........ 414
Irma C. Landa-Avila and Maria-Luisa Cruz
Effect of Playing Factors and Playing History on Game Flow and Companionship Levels for Online Pets ........................................... 428
Elena Carolina Li and Ding-Bang Luh

Game Worlds and Creativity: The Challenges of Procedural Content Generation ................................................................. 443
Rafael Pereira de Araujo and Virginia Tiradentes Souto

Designing Game Controllers in a Mobile Device ........................................... 456
Leonardo Torok, Mateus Pelegrino, Daniela Trevisan, Anselmo Montenegro, and Esteban Clua

Designing the Virtual, Augmented and Tangible Experience

The Importance of Specific Usability Guidelines for Robot User Interfaces ........................................... 471
Julia Ramos Campana and Manuela Quaresma

Discounted Prototyping of Virtual Reality Solutions for Science Education ........................................... 484
Ghislain Maurice Norbert Isabwe, Margrethe Synnøve Moxnes, and Marie Ristesund

A Natural Interaction VR Environment for Surgical Instrumentation Training ........................................... 499
Adalberto Lopes, Antônio Harger, Felipe Breyer, and Judith Kelner

Visual and Interactive Concerns for VR Applications: A Case Study ........................................... 510
Francimar Maciel, Alvaro Lourenço, Paulo Carvalho, and Paulo Melo

Algorithm Experimental Evaluation for an Occluded Liver with/without Shadow-Less Lamps and Invisible Light Filter in a Surgical Room ........................................... 524
Hiroshi Noborio, Kaoru Watanabe, Masahiro Yagi, Shunsuke Ohira, and Katsunori Tachibana

Capturing a Surgical Area Using Multiple Depth Cameras Mounted on a Robotic Mechanical System ........................................... 540
Masahiro Nonaka, Kaoru Watanabe, Hiroshi Noborio, Masatoshi Kayaki, and Kiminori Mizushino

Katsuhiko Onishi, Yohei Miki, Keishi Okuda, Masanao Koeda, and Hiroshi Noborio

A Comparative Usability Analysis of Virtual Reality Goggles ........................................... 565
Ana Carol Pontes de França, Danilo Fernandes Vitorino, Aline de Oliveira Neves, Cristiane Nunes de Lima, and Marcelo Márcio Soares
Augmented Reality Navigation System for Robot-Assisted Laparoscopic Partial Nephrectomy ............................................................. 575
Atsushi Sengiku, Masanao Koeda, Atsuro Sawada, Jin Kono,
Naoki Terada, Toshinari Yamasaki, Kiminori Mizushino,
Takahiro Kunii, Katsuhiko Onishi, Hiroshi Noborio, and Osamu Ogawa

Laser Intensity Data Visualization for Laser Physics ................. 585
Jee Ho Song, Han Sol Shin, Tae Jun Yu, and Kun Lee

A New Organ-Following Algorithm Based on Depth-Depth Matching and Simulated Annealing, and Its Experimental Evaluation. .......... 594
Kaoru Watanabe, Shogo Yoshida, Daiki Yano, Masanao Koeda,
and Hiroshi Noborio

Development of a Surgical Knife Attachment with Proximity Indicators..... 608
Daiki Yano, Masanao Koeda, Katsuhiko Onishi, and Hiroshi Noborio

Wearables and Fashion Technology

TEA Band: An Interactive System to Aid Students with Autism Improve Their Social Interactions ....................................................... 621
Fernanda Bonnin and Victor M. Gonzalez

User Oriented Design Speculation and Implications for an Arm-Worn Wearable Device for Table-Top Role-Playing Games. .............. 636
Oğuz Turan Buruk and Oğuzhan Özcan

Critical and Speculative Wearables: Boundary Objects............... 656
Patricia Flanagan

Melissa’s Concept Store: Physical Environment for Experience ....... 673
Stella Hermida and Adriano Bernardo Renzi

Wearables Design: Epistemic Cultures and Laboratory Performances... 683
Valérie Lamontagne

The Grayman Project. ............................................................... 704
Darien H. Lovell

Digital Humanities and Techno-Animism in Wearables:
A Case-Study-Based Collaborative Design Framework for Digitally-Ensouled Jewellery ......................................................... 719
Doros Polydorou, Kening Zhu, and Alexis Karkotis

Wearable Rhythms: Materials in Play ...................................... 737
Amy Winters

Author Index ................................................................. 747
Design, User Experience, and Usability: Understanding Users and Contexts
Marcus, A.; Wang, W. (Eds.)
2017, XXXI, 810 p. 290 illus., Softcover
ISBN: 978-3-319-58639-7