Table of Contents

Part I: Universal Access to Learning and Education

Building a Programmable Architecture for Non-visual Navigation of Mathematics: Using Rules for Guiding Presentation and Switching between Modalities 3
Iyad Abu Doush and Enrico Pontelli

Mixing Content and Endless Collaboration – MashUps: Towards Future Personal Learning Environments 14
Andreas Auinger, Martin Ebner, Dietmar Nedbal, and Andreas Holzinger

When You Can't Read It, Listen to It! An Audio-Visual Interface for Book Reading 24
Carlos Duarte and Luís Carriço

A Study on the Compatibility of Ubiquitous Learning (u-Learning) Systems at University Level 34
Martin Ebner, Christian Stickel, Nick Scerbakov, and Andreas Holzinger

Intuitive E-Teaching by Using Combined HCI Devices: Experiences with Wiimote Applications 44
Andreas Holzinger, Selver Softic, Christian Stickel, Martin Ebner, and Matjaz Debevc

Assistive Tool for Collaborative Learning of Conceptual Structures 53
Lauri Lahti

Influence of Students' Motivation on Their Experience with E-Learning Systems: An Experimental Study 63
Rosa Lanzilotti, Francesca Montinaro, and Carmelo Ardito

Automatically Structuring Text for Audio Learning 73
Barbara Leporini, Maria Claudia Buzzi, Marina Buzzi, and Giulio Mori

SeMap: A Concept for the Visualization of Semantics as Maps 83
Kawa Nazemi, Matthias Breyer, and Christoph Hornung

Interactive Game Based Learning: Advantages and Disadvantages 92
Margit Pohl, Markus Rester, and Peter Judmaier

Bibliografische Informationen
http://d-nb.info/994479514

digitalisiert durch DEUTSCHE NATIONAL BIBLIOTHEK

Content Personalization for Inclusive Education through Model-Driven Engineering 102
Christopher Power and Richard Paige

How Should I Read This Word?: The Influence of Vowelization in a Deep Language Orthography on Online Text Comprehension 110
Karen Precel, Ronit Webman, Yoram Eshet, and Batsheva Engelberg-Behr

A Contextualised Model for Accessible E-Learning in Higher Education: Understanding the Students' Perspective 120
Jane Seale

A Flexible Design for Accessible Spoken Math 130
Neil Soiffer

Setting Up a Cross-Disciplinary Design Space for E-Learning Application Development 140
Chris Stary

Towards Intelligent Interaction in Classroom 150
Pengfei Xu, Guanghui Han, Wen Li, Zhongke Wu, and Mingquan Zhou

Haptic Science Learning System for Students with Visual Impairments: A Preliminary Study 157
Takehiko Yamaguchi, Steve Johnson, Hyung Nam Kim, Yueqing Li, Chang S. Nam, and Tonya L. Smith-Jackson

Building Problem Spaces for Deaf and Hard of Hearing Students' Spatial Cognition in a Programming Language 167
Nobuhito Yamamoto, Tomoyuki Nishioka, and Syoko Shiroma

Part II: Interaction and Navigation in Physical and Virtual Environments

"Where Did I Put That?" – Effectiveness of Kinesthetic Memory in Immersive Virtual Environments 179
Achim Ebert, Matthias Deller, Daniel Steffen, and Matthias Heintz

Study on Motivation in Healthcare Treatment Using a Networked Healthcare Guidance System 189
Kaori Fujimura, Masahiro Shiraishi, Kenji Ogura, and Yuji Maeda

Navigation Support for the Walking Wounded 197
Lucy T. Gunawan, Augustinus H.J. Oomes, and Zhenke Yang

Process and Location-Aware Information Service System for the Disabled and the Elderly 207
Manchul Han, Gunhee Kim, Sehyung Park, Laehyun Kim, and Sungdo Ha

The Influence of Cognitive and Personality Characteristics on User Navigation: An Empirical Study 216
Nikola Marangunić and Andrina Granić

A Modality Replacement Framework for the Communication between Blind and Hearing Impaired People 226
Konstantinos Moustakas, Dimitrios Tzovaras, Laila Dybkjær, and Niels Ole Bernsen

Indoor Position and Orientation for the Blind 236
Mauricio Sáenz and Jaime Sánchez

3D Virtual Environments for the Rehabilitation of the Blind 246
Julio Villane and Jaime Sánchez

Non-complete Topological Analysis in Image-Based 3D Building Reconstruction 256
Yu Wang and Xin Zheng

Identifying Proper Scales on Digital Maps for In-Vehicle Navigation Systems 262
Anna Wu and Xiaolong Zhang

A Hardware Accelerated Algorithm for Terrain Visualization 271
Mao-Jin Xie and Wei-Qun Cao

Robust Pose Estimation for Outdoor Mixed Reality with Sensor Fusion 281
ZhiYing Zhou, Jayashree Karlekar, Daniel Hii, Miriam Schneider, Weiquan Lu, and Stephen Wittkopf

Part III: Universal Access to On-Line Communities, eServices and Work

Effects of Multimodal Feedback on the Usability of Mobile Diet Diary for Older Adults 293
Miroslav Bojic, Olivier A. Blanson Henkemans, Mark A. Neerincx, Charles A.P.G. Van der Mast, and Jasper Lindenberg

Social Practice: Becoming Enculturated in Human-Computer Interaction 303
Justine Cassell

Impact of Gaze Analysis on the Design of a Caption Production Software 314
Claude Chapdelaine, Samuel Foucher, and Langis Gagnon

Everyone Counts: Voting Accessibility 324
E. Vincent Cross II, Shanee Dawkins, Jerome McClendon, Tony Sullivan, Greg Rogers, Arit Erete, and Juan E. Gilbert

A Study on the Consumers' Brand Cognition and Design Strategy by ZMET 333
Chen-hao Fan

The WORKPAD User Interface and Methodology: Developing Smart and Effective Mobile Applications for Emergency Operators 343
Shah Rukh Humayoun, Tiziana Catarci, Massimiliano de Leoni, Andrea Marrella, Massimo Mecella, Manfred Bortenschlager, and Renate Steinmann

On-Line Communication Interface Design for Visually Impaired Users 353
Sheue-Ling Hwang and Che-Wei Chang

Accessing Positive and Negative Online Opinions 359
Hanhoon Kang, Seong Joon Yoo, and Dongil Han

Web 3D Challenges on the Socialization and Integration of People with Activity Limitations 369
Yiannis Laouris

"Art-sonomy": Social Bookmarking of Real Artworks via Mobile Applications with Visual Tags 375
Stefano Levialdi Ghiron, Carlo Maria Medaglia, and Amedeo Perrone

Interactive Accessible Notifications for Emergency Notification Systems 385
Alessio Malizia, Teresa Onorati, Andrea Bellucci, Paloma Diaz, and Ignacio Aedo

Users Can Do Better with PDAs Than Paper: A Usability Study of PDA-Based vs. Paper-Based Nursing Documentation Systems 395
Néstor J. Rodríguez, José A. Borges, Gilberto Crespo, Carlos Pérez, Carlos Martinez, Celia R. Colón-Rivera, and Aixa Ardín

Groupware Accessibility for Persons with Disabilities 404
John G. Schoeberlein and Yuanqiong (Kathy) Wang

Evaluating Groupware Accessibility 414
John G. Schoeberlein and Yuanqiong (Kathy) Wang

Enhancing the Creativity Process by Adding Context Awareness in Creativity Support Tools 424
George A. Sielis, Aimilia Tzanavari, and George A. Papadopoulos

Models of Culture for Virtual Human Conversation 434
David Traum

Generations in the Workplace: An Exploratory Study with Administrative Assistants 441
Lisa M. Vizer and Vicki L. Hanson

The Role of Intermediaries in the Development of Asynchronous Rural Access 451
Jerry Watkins, Jo Tacchi, and M.S. Kiran

Part IV: Language, Text, Voice, Sound, Images and Signs

WordTree: Results of a Word Prediction System Presented Thanks to a Tree 463
Georges Badr and Mathieu Raynal

Sign Language Recognition: Working with Limited Corpora 472
Helen Cooper and Richard Bowden

Evaluation of a Voice-Based Internet Browser with Untrained and Trained Users 482
Klaus-Peter Engelbrecht, Craig Wootton, Ina Wechsung, and Sebastian Möller

Sign Language Online with Signlink Studio 2.0 492
Deborah I. Fels, Martin Gerdzhev, Ellen Hibbard, Abby Goodrum, Jan Richards, Jim Hardman, and Norma Thompson

Towards a Modeling Language for Designing Auditory Interfaces 502
Mexhid Ferati, Davide Bolchini, and Steve Mannheimer

Indoor Domain Model for Dialogue Systems 512
Porfírio Filipe and Nuno Mamede

Using ASR for Transcription of Teleconferences in IM Systems 521
Ira R. Forman, Thomas Brunet, Paul Luther, and Allen Wilson

Improving Spatial Reference in American Sign Language Animation through Data Collection from Native ASL Signers 530
Matt Huenerfauth

An Interaction Based Approach to Document Segmentation for the Visually Impaired 540
Robert Keefer, Dimitris Dakapoulos, Anna Esposito, and Nikoloaos Bourbakis

DocEmoX: A System for the Typography-Derived Emotional Annotation of Documents 550
Georgios Kouroupetroglou, Dimitrios Tsonos, and Eugenios Vlahos

Computer-Assisted Lip Reading Recognition for Hearing Impaired 559
Yun-Long Lay, Hui-Jen Yang, and Chern-Sheng Lin

Combining Color and Shape Features for Image Retrieval 569
XiaoFu Lee and Qian Yin

Partially Observable Markov Decision Process (POMDP) Technologies for Sign Language Based Human–Computer Interaction 577
Sylvie C.W. Ong, David Hsu, Wee Sun Lee, and Hanna Kurniawati

Acoustic Rendering of Data Tables Using Earcons and Prosody for Document Accessibility 587
Dimitris Spiliotopoulos, Panagiota Stavropoulou, and Georgios Kouroupetroglou

Enhancing Web Document Accessibility by Authoring Texts and Text Comprehension Activities 597
Grammatiki Tsaganou, Maria Samarakou, Panagiotis Blitsas, and Maria Grigoriadou

A Similarity Measure for Vision-Based Sign Recognition 607
Haijing Wang, Alexandra Stefan, and Vassilis Athitsos

Part V: Universal Access to the World Wide Web

WCAG 2.0 Test Samples Repository 619
Shadi Abou-Zahra and Michael Cooper

An Acceptability Predictor for Websites 628
Ray Adams, Anthony White, and Efe Ceylan

Integrating Accessibility and Functional Requirements 635
Rehema Baguma, Roger G. Stone, Jude T. Lubega, and Th. P. van der Weide

Is It Possible to Predict the Manual Web Accessibility Result Using the Automatic Result? 645
Carlos Casado Martínez, Loïc Martínez-Normand, and Morten Goodwin Olsen

Assistive Tools to Reach European Accessibility Web Standards 654
Sonia Colas, Nicolas Monmarché, and Mohamed Slimane

Web Accessibility Metrics: Effects of Different Computational Approaches 664
Andre P. Freire, Christopher Power, Helen Petrie, Eduardo H. Tanaka, Heloisa V. Rocha, and Renata P.M. Fortes

WCAG 2.0 for Designers: Beyond Screen Readers and Captions 674
Loretta Guarino Reid and Andi Snow-Weaver

Using Semantic-Level Tags in HTML/XML Documents 683
Lawrence J. Henschen and Julia C. Lee

Considerations of Efficiency and Mental Stress of Search Tasks on Websites by Blind Persons 693
Junichi Iizuka, Akira Okamoto, Yasuo Horiuchi, and Akira Ichikawa

The Evolution of a Web Accessibility Testing Protocol 701
Tom Jewett and Wayne Dick

Haptic Navigation in the World Wide Web 707
Nikolaos Kaklanis, Dimitrios Tzovaras, and Konstantinos Moustakas

The Usability of Web Accessibility Guidelines: An Approach for Evaluation 716
Maria Kapsi, Evangelos Vlachogiannis, Jenny Darzentas, and Thomas Spyrou

MAID: A Multi-platform Accessible Interface Design Framework 725
Maria Korozi, Sterios Leonidis, George Margetis, and Constantine Stephanidis

On the Gap between Automated and In-Vivo Evaluations of Web Accessibility 735
Rui Lopes and Luís Carriço

Integrating HCI in a Web Accessibility Engineering Approach 745
Lourdes Moreno, Paloma Martínez, and Belén Ruiz-Mezcua

FireScanner: A Browser Scanning Add-On for Users with Motor Impairments 755
Stavroula Ntoa, George Margetis, and Constantine Stephanidis

Universal Access to the Internet Web Pages for Users with Special Needs 764
Pavel Ocenasek

The Analysis and Assessment of Adjustment of Selected Web Sites and Web Browsers to the Needs of People with Disabilities 768
Aleksandra Polak-Sopińska and Zbigniew Wiśniewski

Development of an Agent Based Specialized Web Browser for Visually Handicapped Tamils 778
R. Ponnusamy, T. Chitralekha, V. Prasanna Venkatesan, and S. Kuppswami

Vis-A-Wis: Improving Visual Accessibility through Automatic Web Content Adaptation 787
Giuseppe Santucci

Dynamic Adaptation of Web 2.0 Applications by Combining Extended Device Profiles 797
Carlos A. Velasco, Yehya Mohamad, and Jaroslav Pullmann

A Semantic Accessibility Assessment Environment for Design and Development for the Web 803
Konstantinos Votis, Rui Lopes, Dimitrios Tzovaras, Luis Carriço, and Spiridon Likothanassis

Author Index 815