

# Contents

<b>Part I Influencing Design with Cognitive Engineering and Neuroergonomics</b>	
<b>Cued Recall with Gaze Guiding—Reduction of Human Errors with a Gaze-Guiding Tool . . . . .</b>	<b>3</b>
Barbara Frank and Annette Kluge	
<b>Investigation of the Recognition of Different Font Sizes on Human-Machine Interface and Physiological Characteristics for Aged People . . . . .</b>	<b>17</b>
Shengwen Luo, Li Ding, Linghua Ran and Yan Li	
<b>Cognitive Ergonomics Applied to the eQRH: Developing an Electronic Quick Reaction Handbook for Use During Aviation Emergencies . . . . .</b>	<b>27</b>
Marcia Crosland, Wesley Wang, Jerry Ray, Stuart Michelson and C.J. Hutto	
<b>The Impact of Chinese Cultural Elements on the User Experience in Government Website Design . . . . .</b>	<b>39</b>
Tian Lei, Xu Liu, Lei Wu, Ziliang Jin and Yuhui Wang	
<b>Research on the Influence of Abstract Knowledge to the Individual Cognitive Behavior and Innovative Design Thinking . . . . .</b>	<b>51</b>
Yongjia Zhou, Qing Xue, Jia Hao and Min-xia Liu	
<b>How the Color Matching and Arrow Position Affect the Design of the Bus Stop Board: An Eye Movement Experimental Research . . . . .</b>	<b>65</b>
Chuanyu Zou, Na Lin and Yunhong Zhang	
<b>Measuring the Amplitude of the N100 Component to Predict the Occurrence of the Inattentional Deafness Phenomenon . . . . .</b>	<b>77</b>
Eve Florianne Fabre, Vsevolod Peysakhovich and Mickaël Causse	

## **Part II Cognitive Computing**

<b>Application of a Simulation-Based Software Tool for the Prospective Design of IT Work Places . . . . .</b>	<b>87</b>
Nico Feller, Andreas Amann, Ulf Müller, Michael Schiffmann, Oliver Kurscheid and Markus Gorzellik	
<b>Evaluation of User's Affective Engagement While Interacting with Educational Technologies: A Pilot Study . . . . .</b>	<b>97</b>
Marvin Andujar, Patricia Morreale, Yerika Jimenez, Luis Jimenez and Juan E. Gilbert	
<b>On the Modelling an Artificial Cognitive System Based on the Human-Brain Architecture . . . . .</b>	<b>107</b>
Olga Chernavskaya, Dmitry Chernavskii and Yaroslav Rozhylo	
<b>Identity Verification Using a Kinematic Memory Detection Technique . . . . .</b>	<b>123</b>
Merylin Monaro, Luciano Gamberini and Giuseppe Sartori	
<b>Emotiv-Based Low-Cost Brain Computer Interfaces: A Survey . . . . .</b>	<b>133</b>
Naveen Masood and Humera Farooq	

## **Part III Physiological Monitoring and Interaction**

<b>Test-Retest Stability of EEG and Eye Tracking Metrics as Indicators of Variations in User State—An Analysis at a Group and an Individual Level. . . . .</b>	<b>145</b>
Jessica Schwarz and Sven Fuchs	
<b>Transcranial Direct Current Stimulation (tDCS) Versus Caffeine to Sustain Wakefulness at Night When Dosing at Start-of-Shift. . . . .</b>	<b>157</b>
Lindsey McIntire, R. Andy McKinley, Justin Nelson and Chuck Goodyear	
<b>The Effects of Transcranial Direct Current Stimulation (tDCS) on Training During a Complex Procedural Task . . . . .</b>	<b>173</b>
R. Andy McKinley, Lindsey McIntire, Jeremy Nelson, Justin Nelson and Charles Goodyear	
<b>Eliciting Sustained Mental Effort Using the Toulouse N-Back Task: Prefrontal Cortex and Pupillary Responses . . . . .</b>	<b>185</b>
Mickaël Causse, Vsevolod Peysakhovich and Kevin Mandrick	
<b>An Eye Movement Research on 2D Interactive Game Design . . . . .</b>	<b>195</b>
Na Lin, Lei Feng, Tian Kang, Shiyu Fan and Yunhong Zhang	

## **Part IV Theoretical Advances in Cognitive Engineering and Neuroergonomics**

<b>Cognitive and Emotional-Motivational Implications in the Job Design of Digitized Production Drilling in Deep Mines. . . . .</b>	<b>211</b>
Mohammed-Aminu Sanda	

<b>Measuring Operator Emotion Objectively at a Complex Final Assembly Station . . . . .</b>	<b>223</b>
Sandra Mattsson, Dan Li, Åsa Fast-Berglund and Liang Gong	

<b>A Comparative Study on 3D/2D Visual Search Performance on Different Visual Display Terminal. . . . .</b>	<b>233</b>
Yunhong Zhang, Ruifeng Yu, Lei Feng and Xin Wu	

<b>Aging Effects on Brain Efficiency in General Aviation Pilots. . . . .</b>	<b>243</b>
Zarrin Chua and Mickaël Causse	

<b>Simulating Team Cognition in Complex Systems: Practical Considerations for Researchers . . . . .</b>	<b>255</b>
Michael McNeese, Nathan J. McNeese, Tristan Endsley, James Reep and Peter Forster	

<b>Fatigue and Theories of Resources: The Energetic Metaphor of the Mind Functioning Might Be Reconsidered . . . . .</b>	<b>269</b>
José J. Cañas	

<b>A New Method for the Objective Registration of Mental Workload. . . . .</b>	<b>279</b>
Thea Radüntz	

## **Part V Assessing Cognition and Performance**

<b>Effect of Time Pressure on Work Efficiency and Cognitive Judgment . . . . .</b>	<b>293</b>
Junpei Yabuki and Hiroshi Hagiwara	

<b>Cognitive Architecture Based Platform on Human Performance Evaluation for Space Manual Control Task . . . . .</b>	<b>303</b>
Yanfei Liu, Zhiqiang Tian, Yuzhou Liu, Junsong Li and Feng Fu	

<b>Multi-level Cognitive Cybernetics in Human Factors . . . . .</b>	<b>315</b>
Daniel N. Cassenti, Katherine R. Gamble and Jonathan Z. Bakdash	

<b>Accessibility Evaluation: Manual Development and Tool Selection for Evaluating Accessibility of E-Textbooks . . . . .</b>	<b>327</b>
Yu Ting Sun, Aaron K.M. Manabat, Mei Ling Chan, Isis Chong and Kim-Phuong L. Vu	

**Development of a Scoring System for Evaluating the Accessibility of eTextbooks . . . . .** 339  
Mei Ling Chan, Yu Ting Sun, Andriana M. Tesoro  
and Kim-Phuong L. Vu

**Measuring the After-Effects of Disruption on Task Performance . . . . .** 351  
Robert G. Abbott, Eric Moyer and Chris Forsythe

**Complexity and Reliability as Basic Quantitative Characteristics of Computer Based Tasks . . . . .** 361  
Inna Bedny, Gregory Bedny and Waldemar Karwowski

**Windshield Frame Shape and Awareness of the External World While Driving an Automobile . . . . .** 375  
Yusaku Takeda, Koji Iwase, Toshihiro Hara, Atsuhide Kishi,  
Kazuo Nishikawa, Richard Veale, Masatoshi Yoshida,  
Tadashi Isa and Takahide Nouzawa

**Managing Mediated Interruptions in Manufacturing: Selected Strategies Used for Coping with Cognitive Load . . . . .** 389  
Jessica Lindblom and Jonna Gündert

**The Design Features of Pictorial Face Design for Facilitating Exertion Perception . . . . .** 405  
Ding Hau Huang, Wen Ko Chiou, Bi Hui Chen and Yi-Lang Chen

**Design an Interactive Game App of Horticultural Therapy for Older Adults . . . . .** 413  
Pin-Yi Lai and Chien-Hsu Chen

**Visual Psychophysical Thresholds for Perceiving Objects and Letters on Monocular Head-Up Displays in Indoor and Outdoor Lighting Conditions . . . . .** 421  
Breanne K. Hawes, Tad T. Brunyé and Brian P. Westgate

**Effects of Biasing Information on the Conceptual Structure of Team Communications . . . . .** 433  
Michael T. Tolston, Victor Finomore, Gregory J. Funke, Vincent Mancuso,  
Rebecca Brown, Lauren Menke and Michael A. Riley

Advances in Neuroergonomics and Cognitive  
Engineering

Proceedings of the AHFE 2016 International  
Conference on Neuroergonomics and Cognitive  
Engineering, July 27-31, 2016, Walt Disney World®,  
Florida, USA

Hale, K.S.; Stanney, K.M. (Eds.)

2017, XII, 445 p. 141 illus., 88 illus. in color., Softcover

ISBN: 978-3-319-41690-8