

Contents

Cognitive Aspects of Display and Information Design

The Development of a Method to Assess the Effects of Traffic Situation and Time Pressure on Driver Information Preferences	3
<i>Alexander Eriksson, Ignacio Solis Marcos, Katja Kircher, Daniel Västfjäll, and Neville A. Stanton</i>	
Distraction and Driving Behavior by Presenting Information on an “Emissive Projection Display” Compared to a Head-up Display	13
<i>Verena C. Knott, Stefan Demmelmair, and Klaus Bengler</i>	
Modeling Situation Awareness on Alarm Displays in Nuclear Power Plants	24
<i>Sheau-Farn Max Liang and Chih-Wei Chen</i>	
A Study of Multi-target Visual Search by Eye Movement Behavior	34
<i>Zhongqi Liu, Zhaofang Xu, Qianxiang Zhou, Fang Xie, and Shihua Zhou</i>	
Effects of Auditory and Tactile Warning on Drivers’ Response to Hazard Under Noisy Environment	45
<i>Atsuo Murata and Takashi Kuroda</i>	
Study on Event-Related Potential of Information Alarm in Monitoring Interface	54
<i>Jiang Shao, Chengqi Xue, Haiyan Wang, Wencheng Tang, and Yafeng Niu</i>	
Effect of Icon Density and Color Contrast on Users’ Visual Perception in Human Computer Interaction	66
<i>Zhangfan Shen, Chengqi Xue, Jing Li, and Xiaozhou Zhou</i>	
Prevalence Effects in X-Ray Screening Tasks with a Static or Dynamic Visual Display: Is There Any Difference?	77
<i>Lingyu Wang and Xianghong Sun</i>	
Visual Comfort and Fatigue Between Watching Linear Polarized and Circular Polarized LCD TVs as Measured by Eye Tracking	84
<i>Yunhong Zhang, Chaoyi Zhao, and Xin Zhang</i>	

Applied Cognitive Psychology

Visual Behavior Analysis of Human Performance in Precision Tasks	95
<i>Nitesh Bhatia, Dibakar Sen, and Anand V. Pathak</i>	

The Effect of Simulated Threat on Task Performance During Emotion Recognition 107
Tibor Bosse and Koen Schmitfink

It’s Dark in There: Using Systems Analysis to Investigate Trust and Engagement in Dark Web Forums. 117
David Lacey and Paul M. Salmon

A CMF Database Framework Design-A Case of Application of User Mental Model. 129
Jikun Liu, Chenyu Zhao, and Hengfeng Zuo

Gamification Design Based Research on Speech Training System for Hearing-Impaired Children 140
Qiang Liu, Fengjiao Cai, Ying Yang, and Ting Han

Military Vehicle Dashboard Design Using Semantics Method in Cognitive Ergonomics Framework 152
Billy Muhamad Iqbal, Amalia Suzianti, and Boy Nurtjahyo

Seeing Officiating as a Sociotechnical System – The Case for Applying Distributed Situation Awareness to Officials in Sport. 164
Timothy J. Neville and Paul M. Salmon

Towards a Continuous Method for Mental Workload Registration. 176
Thea Radüntz and Gabriele Freude

Black or White? Influence of Robot Arm Contrast on Distraction in Human-Robot Interaction 188
Jonas Schmidler, Asuman Sezgin, Thomas Illa, and Klaus Bengler

New Knowledge for Built Environments: Exploring Urban Design from Socio-technical System Perspectives 200
Nicholas J. Stevens and Paul M. Salmon

Safety, Risk and Human Reliability

Bridging the Research-Practice Gap: Validity of a Software Tool Designed to Support Systemic Accident Analysis by Risk Managers 215
Natassia Goode, Paul M. Salmon, Natalie Z. Taylor, Michael G. Lenné, and Caroline F. Finch

“How Do I Save It?” Usability Evaluation of a Systems Theory-Based Incident Reporting Software Prototype by Novice End Users 226
Eryn Grant, Natassia Goode, Paul M. Salmon, Michael G. Lenné, Bridie Scott-Parker, and Caroline F. Finch

Sorry, I'm Late; I'm Not in the Mood: Negative Emotions Lengthen Driving Time 237
Myounghoon Jeon and Jayde Croschere

Primacy of Immediate Reward Underlying Violation: Basic Study on Safety Management 245
Atsuo Murata, Yukio Ohta, and Makoto Moriwaka

An Attempt to Predict Driver's Drowsiness Using Trend Analysis of Behavioral Measures 255
Atsuo Murata, Kohei Fukuda, and Koh Yoshida

An Attempt to Predict Point in Time with High Risk of Crash Using Psychological Rating on Drowsiness and X-Bar Chart of Behavioral Measures 265
Atsuo Murata and Kensuke Naitoh

The Elephant in the Room: Normal Performance and Accident Analysis 275
Paul M. Salmon, Natassia Goode, Erin Stevens, Guy Walker, and Neville A. Stanton

Inverting Traditional Views on Human Task-Processing Behavior by Focusing on Abilities Instead of Disabilities – A Discussion on the Functional Situation Management of Drivers to Solve Demanding Situations 286
Maximilian Schwalm, Gudrun Mechthild Irmgard Voß, and Stefan Ladwig

What the Death Star Can Tell Us About System Safety 297
Guy Walker, Paul Salmon, and Neville A. Stanton

Aviation and Space Safety

How 3D-Displays in ATC Permit Direct Event Perception 309
Andreas Baier and Alf Zimmer

How Automation Effect Mental Workload of Novice Operators in Space Rendezvous and Docking 317
Xiaoping Du, Yijing Zhang, Bin Wu, Meng Wang, Jiayi Cai, and Weifen Huang

Evaluating Operator Performance in Teleoperated Manipulator System Factored by Camera Configurations. 327
Yan Fu, Wei Chen, Shiqi Li, and Zhang Jiao

On the Development of a Monitoring Test for the Selection of Aviation Operators 335
Dietrich Grasshoff, Catrin Hasse, Carmen Bruder, and Hinnerk Eißfeldt

Supporting Fighter Pilot Decision Making Through Team Option Awareness	345
<i>Tove Helldin and Tina Erlandsson</i>	
Visual Movement and Mental-Workload for Pilot Performance Assessment.	356
<i>Chen-Kai Hsu, Shu-Chiang Lin, and Wen-Chin Li</i>	
Dual Pilot and Single Pilot Operations – Hierarchical Task Decomposition Analysis of Doing More with Less	365
<i>John Huddleston, Don Harris, Dale Richards, Steve Scott, and Rod Sears</i>	
Flight Safety Margin Theory - A Theory for the Engineering Analysis of Flight Safety.	377
<i>Hung-Sying Jing, Chia-Sheng Sheng, and Yu-Feng Lin</i>	
Visualization and Analysis of Controllers’ Working Processes in En Route Air Traffic Control	388
<i>Daisuke Karikawa and Hisae Aoyama</i>	
The Efficiency of New Audio Alerts in the COOPANS Eurocat System	399
<i>Peter Kearney and Wen-Chin Li</i>	
Interface Design and Pilot Attention Distribution Whilst Pursuing a Dynamic Target	408
<i>Wen-Chin Li, Chung-san Yu, Graham Braithwaite, and Matthew Greaves</i>	
Effectiveness of Advanced Collaboration Tools on Crew Communication in Reduced Crew Operations	416
<i>Sarah V. Ligda, Ute Fischer, Kathleen Mosier, Michael Matessa, Vernol Battiste, and Walter W. Johnson</i>	
The Analysis of Human Error Prevention Strategies in Military Aviation	428
<i>Shu-Chiang Lin, Jeng-Chung Chen, and Wen-Chin Li</i>	
An Integrated Framework for Crew - Centric Flight Operations	436
<i>Nick McDonald, Alison Kay, Paul Liston, Rabea Morrison, and Margaret Ryan</i>	
Improving Target Acquisition Performance by Integrating Human Behavior Models and Unmanned Aerial Vehicle Control Automation	448
<i>Sara Naderer, Michael Patzek, Clayton Rothwell, and Krishna Kalyanam</i>	

Bridging the Gap Between Desktop Research and Full Flight Simulators for Human Factors Research. 460
Matthias Oberhauser, Daniel Dreyer, Sebastien Mamessier, Thomas Convard, Daniel Bandow, and Axel Hillebrand

Understanding Team Effectiveness in a Tactical Air Unit. 472
Ulrika Ohlander, Jens Alfredson, Maria Riveiro, and Göran Falkman

How to Make the Most of Your Human: Design Considerations for Single Pilot Operations 480
Paul C. Schutte

Research on Error Proofing Design of Boeing and Airbus Cockpit from Pilots Survey 492
Ruishan Sun, Kang Zhao, and Xin Zhang

Comfort Evaluation Method of Commercial Pilot Posture. 505
Xiaoyan Zhang, Hongjun Xue, Xiaoheng Su, and Yunteng Hou

Relational Complexity Network and Air Traffic Controllers' Workload and Performance 513
Jingyu Zhang and Feng Du

Author Index 523



<http://www.springer.com/978-3-319-20372-0>

Engineering Psychology and Cognitive Ergonomics
12th International Conference, EPCE 2015, Held as Part
of HCI International 2015, Los Angeles, CA, USA, August
2-7, 2015, Proceedings
Harris, D. (Ed.)
2015, XVII, 524 p. 218 illus., Softcover
ISBN: 978-3-319-20372-0