

*Advances in
Human Aspects of
Transportation*

Part II

Advances in Human Factors and Ergonomics 2014

5th International Conference on Applied Human Factors and Ergonomics

20 Volume Set: Proceedings of the 5th AHFE Conference 19-23 July 2014

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Human Aspects of
Transportation
Part II*

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Published by AHFE Conference © 2014

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Printed in the United States of America on acid-free paper

Version Date: 20140710

International Standard Book Number: 978-1-4951-2098-5 (Hardback)

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Table of Contents

Section 11: Road and Rail - Driver State Detection and Simulated Driving: Drawbacks and Opportunities

Evolution of a new adjustable motorcycle test rig design for measuring motorcyclist fatigue during prolonged riding H. Rashid, M. Ma'arof, A. Omar, S. Abdullah and Roseleena Jaafar, Malaysia	3
Motorcycling: Awkward posture is the best posture! M. Ma'arof, H. Rashid, A. Omar, S. Abdullah, I. Ahmad, R. Jaafar and S. Karim, Malaysia	12
Application of galvanic vestibular stimulation for the evaluation of vehicle settings in a fixed-base driving simulator M. Wiedemann, W. Remlinger and K. Bengler, Germany	21
Comparison of real and simulated driving for a static driving simulator M. Krause, L. Yilmaz and K. Bengler, Germany	29
How do immersive driving environments influence user performances and experiences? D. Reich, J. Wittkugel and R. Stark, Germany	41

Section 12: Road and Rail - Highly Automated Driving -Aspects of Driver Vehicle Interaction II

Hands and feet free driving: Ready or Not? V. Banks and N. Stanton, UK	55
Taking over control from highly automated vehicles C. Gold and K. Bengler, Germany	64
The "Methods for Designing Future Autonomous Systems" (MODAS) project: Developing the cab for a highly autonomous truck S. Krupenia, A. Selmarker, J. Fagerlonn, K. Delsing, A. Jansson, B. Sandblad and C. Grane, Sweden	70
End-users' acceptance and use of adaptive cruise control systems N. Strand, M. Karlsson and L. Nilsson, Sweden	82

Section 13: Road and Rail - Human Mobility Increase as a Key Element in Designing Innovative Transportation Systems

Ergonomic issues in design of innovative means of transportation and transportation systems I. Grabarek and W. Choromanski, Poland	95
Lever wheelchair for disabled people: An answer to the increasing demand for wheelchair mobility K. Fiok and W. Choromanski, Poland	107
Analysis of ride comfort on the stairs climbing wheelchair G. Dobrzynski, W. Choromański and I. Grabarek, Poland	114
Traffic fatalities and serious injuries in Europe – A study of association with cultural, demographic and income variables I. Barata and D. Coelho, Portugal	126
Simulation study of wheelchair's maneuverability G. Dobrzynski, W. Choromański and K. Fiok, Poland	137

Section 14: Road and Rail - Perception and Control Issues in the Design of Advanced Driving Assistance Systems

Augmented reality head-up-display for advanced driver assistance systems: A driving simulation study L. Halit, A. Kemeny, H. Mohellebi, S. Garbaya, F. Merienne, S. Michelin and V. Albaut, France	149
Eco-driving with Electric cars: Effect of continuous and on-demand feedback on driving behavior and safety S. Beloufa, B. Vailliau, J.-M. Boucheix, A. Kemeny and F. Merienne, France	158
Effects of interface complexity of head-up display on driver's driving performance and self-perception S. Li, D. Wang and W. Zhang, China	165
Influence of information flows on the results of a driver's activity in the system "driver – car – road – environment" V. Dolya, S. Kobiakov and I. Afanasieva, Ukraine	176

Section 15: Road and Rail - Transport Data and Analysis

Deconstructing the whole journey traveller experience A. Woodcock and J. Osmond, UK	186
--	-----

Comparative analysis of driving maneuvers using 3D body posture data A. Kondyli, V. Sisiopiku, L. Zhao and A. Barmpoutis, USA	194
Driving behavior at intersections equipped with red light cameras – A Monte Carlo simulation based on driving simulator data J. Cornu, K. Brijs, S. Daniels, T. Brijs, E. Hermans, and G. Wets, Belgium	204
Electric vehicle drivers overcome range anxiety prior to their first trip S. Mansbridge, M. Burgess and M. Harris, UK	216
Parking behaviours for inductive charging S. Birrell, D. Wilson, G. Dhadyalla, C. P. Yang, A. McGordon and P. Jennings, UK	224

Section 16: Road and Rail - Systems Thinking in Road and Rail Transport

Combining human factors methods with transport data recordings G. Walker and A. Strathie, UK	236
Key players and their interactions within the young driver road safety system: Perspectives and Partners B. Scott-Parker, P. Salmon, N. Goode and T. Senserrick, Australia	246
Pathways to failure? Using work domain analysis to predict accidents in complex systems P. Salmon, M. Lenne, G. Read, G. Walker and N. Stanton, Australia/UK	258
How much route guidance is enough? G. Walker and A. Manson, UK	267
Life in the wild? Using ergonomics systems methods and field of safe travel theory to evaluate intersection designs M. Cornelissen, P. Salmon, N. Stanton and R. McClure, Australia/UK	277
Extracting design information from the outputs of systems analysis: A case study in public transport ticketing G. Read, P. Salmon, M. Lenne and D. Jenkins, Australia/UK	286

Section 17: Road and Rail - Electric Vehicles: New Challenges for Human Machine Interaction

Social media monitoring as a tool for the development of disruptive innovations A. Keinath and R. Vilimek, Germany	300
---	-----

Does range anxiety exist? Experiences from the ELVIRE project M. Nilsson, Sweden	307
Attitude towards electric vehicles in the Czech Republic P. Zamečník, M. Šucha, P. Řežáč and K. Bohmova, Czech Republic	314
New features on noise, vibration and harshness posed by the next generation of vehicles N. Campillo Davo, M. Sanchez-Lozano, R. Peral-Orts, B. Pluymers and W. Desmet, Spain/Belgium	319
Pushing the limits? Regenerative braking in takeover situations C. Witzlack, P. Cocron and J. Krems, Germany	326
Examining user-range interaction in battery electric vehicles: A field study approach T. Franke, M. Gunther, M. Trantow, J. Krems, R. Vilimek and A. Keinath, Germany	334

Section 18: Road and Rail - System Design and Evaluation II

Advanced in-vehicle applications to mitigate driver aggression A. Soro, S. Wollstadter and A. Rakotonirainy, Australia/Germany	348
Experimental studies on driver's expectations regarding the positions of display and control elements in the car cockpit M. Schwalk, S. Hetzinger and T. Maier, Germany	359
Evaluation of telematic applications for information provision in public transport A. Szarata, O. Kokkinou, S. Basbas and I. Politis, Poland/Greece	371
A driving simulator study on the effect of transversal rumble strips located nearby dangerous curves under repeated exposure C. Arien, K. Brijs, W. Ceulemans, G. Vanroelen, E. Jongen, S. Daniels, T. Brijs and G. Wets, Belgium	381
Development of a concept for ergonomic design and work organization of remote lock operation centers J. Butzler, F. Motz, A. Mertens, H. Horoufchin, C. Broehl, N. Jochems and C. Schlick, Germany	394

Section 19: Road and Rail - Driver Distraction and Inattention

Perceived and real impacts of digital advertising billboards on driving performance V. Sisiopiku, M. Islam, S. Wittig, S. Welburn and D. Stavrinos, USA	408
--	-----

Recording and evaluation procedure of drivers' distraction in accordance with driver's characteristics in high speed arterials E. Misokefalou and N. Eliou, Greece	420
Driving maneuver prediction based on driver behavior observation F. Diederichs and G. Pöhler, Germany	427
Impact of music tempo on simulated driving performance J. Navarro and E. Reynaud, France	439
Section 20: Aviation - Human Factors Issues in Air Traffic Management II	
Development and application of a hybrid control theory model to quantify human-machine interaction problems on the flight deck C. Surakitbanharn and S. Landry, Japan/USA	450
How can procedures and checklists help pilots in abnormal flight situations? A. Haslbeck, P. Gontar and E. Schubert, Germany	456
Using system-wide trust theory to analyze passenger loss of trust in aircraft automation S. Winter, S. Rice and K. Reid, USA	462
Fuzzy model of air traffic controller attitude to the risk during tactical and immediate decision making A. Reva and S. Borsuk, Ukraine	468
Section 21: Aviation - Human Factors Issues in Air Traffic Management III	
Air traffic controller workload impact by integration of Datalink system in an advanced airport controller working position M. Ellejmi, S. Dubuisson, M. Bonnier and R. Lane, France	480
Air traffic controller support by speech recognition O. Ohneiser, H. Helmke, H. Ehr, H. Gurluk, M. Hossli, T. Muhlhausen, Y. Oualil, M. Schulder, A. Schmidt, A. Khan and D. Klakow, Germany	492
What about the next generation? Assessing experts' judgments of human abilities required for working in a future ATC environment D. Schulze-Kissing and H. Einfeldt, Germany	504
Evaluation of an arrival coordinator position in a terminal metering environment M. Kupfer, J. Mercer, T. Callantine, V. Gujral and A. Gomez, USA	517

Identifying markers of performance decline in air traffic controllers
T. Edwards, S. Sharples, B. Kirwan, J. Wilson and N. Balfe,
UK/France/Ireland

529

Preface

Human Factors and Ergonomics have made a considerable contribution to the research, design, development, operation and analysis of transportation systems which includes road and rail vehicles and their complementary infrastructure, aviation and maritime transportation. This book presents recent advances in the Human Factors aspects of Transportation. These advances include accident analysis, automation of vehicles, comfort, distraction of drivers (understanding of distraction and how to avoid it), environmental concerns, in-vehicle systems design, intelligent transport systems, methodological developments, new systems and technology, observational and case studies, safety, situation awareness, skill development and training, warnings and workload.

This book brings together the most recent human factors work in the transportation domain, including empirical research, human performance and other types of modeling, analysis, and development. The issues facing engineers, scientists, and other practitioners of human factors in transportation research are becoming more challenging and more critical.

The common theme across these sections is that they deal with the intersection of the human and the system. Moreover, many of the chapter topics cross section boundaries, for instance by focusing on function allocation in NextGen or on the safety benefits of a tower controller tool. This is in keeping with the systemic nature of the problems facing human factors experts in rail and road, aviation and maritime research– it is becoming increasingly important to view problems not as isolated issues that can be extracted from the system environment, but as embedded issues that can only be understood as a part of an overall system.

In keeping with a system that is vast in its scope and reach, the chapters in this book cover a wide range of topics. The chapters are organized into 30 sections over three volumes.

Part I:

- Section 1: Aviation - Human Factors Issues in Air Transportation, Aviation Safety and Risk Analysis*
- Section 2: Aviation - Human Factors Issues in Air Traffic Management I*
- Section 3: Maritime - Design Tools and Methods*
- Section 4: Maritime - Communication and Cognitive Performances*
- Section 5: Road and Rail - Road Infrastructure, Design and Safety*
- Section 6: Road and Rail - System Design and Evaluation I*
- Section 7: Aviation - Recent Methodological Developments and Results from Psychophysiology in Ergonomics (PIE)*
- Section 8: Road and Rail - Highly Automated Driving - Aspects of Driver Vehicle Interaction I*
- Section 9: Road and Rail - Human Factors at Level Crossings*
- Section 10: Road and Rail - Risk and Driving*

Part II:

- Section 11: Road and Rail - Driver State Detection and Simulated Driving: Drawbacks and Opportunities*
- Section 12: Road and Rail - Highly Automated Driving -Aspects of Driver Vehicle Interaction II*
- Section 13: Road and Rail - Human Mobility Increase as a Key Element in Designing Innovative Transportation Systems*
- Section 14: Road and Rail - Perception and Control Issues in the Design of Advanced Driving Assistance Systems*
- Section 15: Road and Rail - Transport Data and Analysis*
- Section 16: Road and Rail - Systems Thinking in Road and Rail Transport*
- Section 17: Road and Rail - Electric Vehicles: New Challenges for Human Machine Interaction*
- Section 18: Road and Rail - System Design and Evaluation II*
- Section 19: Road and Rail - Driver Distraction and Inattention*
- Section 20: Aviation - Human Factors Issues in Air Traffic Management II*
- Section 21: Aviation - Human Factors Issues in Air Traffic Management III*

Part III:

Section 22: Maritime - Human Diversity

Section 23: Maritime - Training and Work Simulations

Section 24: Road and Rail - Eco-Driving, Public Transport and Pedestrians

Section 25: Road and Rail - Human Factors in Rail Systems

Section 26: Road and Rail - Accident Analysis and Prevention

Section 27: Road and Rail - Individual Differences in Driving

Section 28: Road and Rail - Human Factors in Rail and RLX

Section 29: Road and Rail - System Design and Evaluation III

Section 30: Road and Rail - Naturalistic and Simulator HF Driving Communities

This book will be of interest and use to transportation professionals who work in the road and rail, aviation and maritime domains as it reflects some of the latest Human Factors and Ergonomics thinking and practice. It should also be of interest to students and researchers in these fields, to help stimulate research questions and ideas. It is my hope that the ideas and studies reported within this book will help to produce safer, more efficient and effective transportation systems in the future.

We are grateful to the Scientific Advisory Board which has helped elicit the contributions and develop the themes in the book. These people are academic leaders in their respective fields, and their help is very much appreciated, especially as they gave their time freely to the project.

Road and Rail

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