

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 factor 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 the 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 15 sections over three volumes.

Section 1: Road and Rail—Ergonomic Analysis and Assistance

Section 2: Aviation—Human Factors in Aviation

Section 3: Road and Rail—Pedestrians and Intersections

Section 4: Road and Rail—Driver, Behavior, Distraction and Fatigue

Section 5: Maritime—Human Performance and Safety Assessment in the Maritime Domain

Section 6: Road and Rail—Vehicle Automation

Section 7: Road and Rail—Logistics and Passengers

Section 8: Road and Rail—Accidents and Pedestrian Modeling

Section 9: Road and Rail—Warning Systems/Public Transport

Section 10: Aviation—Human Factors in Aviation

Section 11: Road and Rail—Eco-Driving and Electric Vehicles

Section 12: Road and Rail—Education and Hazard Perception

Section 13: Road and Rail—Infrastructure

Section 14: Maritime—Users, Tasks and Tools in the Maritime Domain

Section 15: Road and Rail—Safety, Driver Psychophysiology and Eye Tracking

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

G. Balbinotti, Brazil

K. Bengler, Germany

G. Burnett, UK

P. Chapman, UK

F. Chen, Sweden

D. Coelho, Portugal

L. Dickson-Bull, USA

L. Dorn, UK

I. Glendon, Australia

I. Grabarek, Poland

R. Happee, Netherlands

S. Jamson, UK

D. Kaber, USA

J. Krems, Germany

M. Lenné, Australia

F. Mars, France

D. McAvoy, USA

A. Mills, UK

R. Risser, Austria

P. Salmon, Australia

S. ur Rehman, Sweden
 G. Walker, Scotland
 K. Young, Australia

Aviation

M. Biella, Germany
 C. Borst, The Netherlands
 T. Edwards, USA
 M. Feary, USA
 A. Haslbeck, Germany
 B. Hooey, USA
 D. Kaber, USA
 K. Latorella, USA
 A. Majumdar, UK
 L. Martin, USA
 J. Mercer, USA
 M. Mulder, The Netherlands
 S. Verma, USA
 K. Vu, USA

Maritime

A. Alkan, Turkey
 D. Andrews, UK
 D. Gray, USA
 M. Grootjen, The Netherlands
 T. Koester, Denmark
 S. MacKinnon, Canada
 M. Musio Sale, Italy
 G. Praetorius, Sweden
 A. Ratti, Italy

Southampton, UK
 West Lafayette, USA
 Pescara, Italy
 Pescara, Italy
 July 2016

Neville A. Stanton
 Steven Landry
 Giuseppe Di Bucchianico
 Andrea Vallicelli

Advances in Human Aspects of Transportation
Proceedings of the AHFE 2016 International
Conference on Human Factors in Transportation, July
27-31, 2016, Walt Disney World®, Florida, USA
A Stanton, N.; Landry, S.; Di Bucchianico, G.; Vallicelli, A.
(Eds.)
2017, XX, 1178 p. 456 illus., 308 illus. in color.,
Softcover
ISBN: 978-3-319-41681-6