Contents

Models

Whither Workload? Mapping a Path for Its Future Development. . . . . . . . . . 3
   P.A. Hancock

Mental Workload: Assessment, Prediction and Consequences . . . . . . . . . . . 18
   Christopher D. Wickens

Assessment of Mental Workload: A Comparison of Machine
Learning Methods and Subjective Assessment Techniques . . . . . . . . . . . . . . 30
   Karim Moustafa, Saturnino Luz, and Luca Longo

Elasticity and Rigidity Constructs and Ratings of Subjective Workload
for Individuals and Groups. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 51
   Stephen J. Guastello, David E. Marra, Anthony N. Correro II,
   Maura Michels, and Henry Schimmel

Observations and Issues in the Application of Cognitive Workload
Modelling for Decision Making in Complex Time-Critical Environments . . . . 77
   K. Tara Smith

The Impact of Workload and Fatigue on Performance . . . . . . . . . . . . . . . . 90
   Jialin Fan and Andrew P. Smith

Estimation of Train Driver Workload: Extracting Taskload Measures
from On-Train-Data-Recorders . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 106
   Nora Balfe, Katie Crowley, Brendan Smith, and Luca Longo

The Relationship Between Workload and Performance in Air Traffic
Control: Exploring the Influence of Levels of Automation and Variation
in Task Demand . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 120
   Tamsyn Edwards, Lynne Martin, Nancy Bienert, and Joey Mercer

Applications

The WASCAL-Tool: Prediction of Staffing for Train Dispatching
as Part of the Design Process of Track Yards . . . . . . . . . . . . . . . . . . . . . . . . 143
   Melcher Zeilstra, Alfred van Wincoop, and Jouke Rypkema
Adaptive Automation and the Third Pilot: Managing Teamwork and Workload in an Airline Cockpit .......................... 161
Joan Cahill, Tiziana C. Callari, Florian Fortmann, Stefan Suck, Denis Javaux, Andreas Hasselberg, Sybert H. Stoeye, and Bas A. van Doorn

Quantification of Rail Signaller Demand Through Simulation .................. 174
Lise Delamare, David Golightly, Graham Goswell, and Peter Treble

Mental Workload as an Outcome in Medical Education ....................... 187
Aidan Byrne

Effect of Control-Display Compatibility on the Mental Workload of Submarine Helmsmen ........................................ 198
Philippe Rauffet, Christine Chauvin, Chiara Nistico, Samantha Judas, and Norbert Toumelin

Neuroergonomics Method for Measuring the Influence of Mental Workload Modulation on Cognitive State of Manual Assembly Worker ............... 213
Pavle Mijović, Miloš Milovanović, Vanja Ković, Ivan Gligorijević, Bogdan Mijović, and Ivan Mačužić

The Benefits of Task and Cognitive Workload Support for Operators in Ground Handling ........................................ 225
M. Chiara Leva and Yilmar Builes

Workload Differences Between On-road and Off-road Manoeuvres for Motorcyclists ................................................. 239
Simon Tong, Shaun Helman, Nora Balfe, Camila Fowler, Emma Delmonte, and R. Hutchins

Workload, Fatigue and Performance in the Rail Industry ....................... 251
Andrew P. Smith and Hugo N. Smith

Author Index .......................................................... 265
Human Mental Workload: Models and Applications
First International Symposium, H-WORKLOAD 2017,
Dublin, Ireland, June 28-30, 2017, Revised Selected Papers
Longo, L.; Leva, M.C. (Eds.)
2017, X, 265 p. 70 illus., Softcover
ISBN: 978-3-319-61060-3