Contents

Part I Introduction and Basics

1 Retrospective and Future Automotive Infotainment Systems—100 Years of User Interface Evolution
Gerrit Meixner, Carina Häcker, Björn Decker, Simon Gerlach, Anne Hess, Konstantin Holl, Alexander Klaus, Daniel Lüddecke, Daniel Mauser, Marius Orfgen, Mark Poguntke, Nadine Walter and Ran Zhang

2 Engaged Drivers–Safe Drivers: Gathering Real-Time Data from Mobile and Wearable Devices for Safe-Driving Apps
Fabius Steinberger, Ronald Schroeter and Diana Babiac

Part II Usability and User Experience

3 Driver and Driving Experience in Cars
Klaus Bengler

4 “It’s More Fun to Commute”—An Example of Using Automotive Interaction Design to Promote Well-Being in Cars
Marc Hassenzahl, Matthias Laschke, Kai Eckoldt, Eva Lenz and Josef Schumann

5 Design to Support Energy Management for Electric Car Drivers
Anders Lundström and Cristian Bogdan

6 Cultural User Experience in the Car—Toward a Standardized Systematic Intercultural Agile Automotive UI/UX Design Process
Rüdiger Heimgärtner, Alkesh Solanki and Helmut Windl
Part III Interaction Techniques and Technologies

7 The Neglected Passenger—How Collaboration in the Car Fosters Driving Experience and Safety ......................... 187
Alexander Meschtscherjakov, Nicole Perterer, Sandra Trösterer,
Alina Krischkowsky and Manfred Tscheligi

8 The Influence of Non-driving-Related Activities on the Driver’s Resources and Performance .......................... 215
Renate Häuslschmid, Bastian Pfleging and Andreas Butz

9 Eye and Head Tracking for Focus of Attention Control in the Cockpit ........................................... 249
Mohammad Mehdi Moniri and Michael Feld

10 From Car-Driver-Handovers to Cooperative Interfaces: Visions for Driver–Vehicle Interaction in Automated Driving ...... 273
Marcel Walch, Kristin Mühl, Johannes Kraus, Tanja Stoll,
Martin Baumann and Michael Weber

Andreas Riener, Myounghoon Jeon, Ignacio Alvarez
and Anna K. Frison

12 Towards Adaptive Ambient In-Vehicle Displays and Interactions: Insights and Design Guidelines from the 2015 AutomotiveUI Dedicated Workshop ................................................ 325
Andreas Löcken, Shadan Sadeghian Borojeni, Heiko Müller,
Thomas M. Gable, Stefano Triberti, Cyriel Diels, Christiane Glatz,
Ignacio Alvarez, Lewis Chuang and Susanne Boll

13 The Steering Wheel: A Design Space Exploration .............. 349
Alexander Meschtscherjakov

Part IV Tools, Methods and Processes

14 The Insight–Prototype–Product Cycle Best Practices and Processes to Iteratively Advance In-Vehicle Interactive Experiences Development ........................................... 377
Ignacio Alvarez, Adam Jordan, Juliana Knopf, Darrell LeBlanc,
Laura Rumbel and Alexandra Zafiroglu

15 Virtual Reality Driving Simulator Based on Head-Mounted Displays ................................................................. 401
Quinate Chioma Ihemedu-Steinke, Rainer Erbach, Prashanth Halady,
Gerrit Meixner and Michael Weber
16 Methods to Validate Automotive User Interfaces Within Immersive Driving Environments ........................... 429
Diana Reich, Christian Buchholz and Rainer Stark

Part V Applications

17 User Experience with Increasing Levels of Vehicle Automation: Overview of the Challenges and Opportunities as Vehicles Progress from Partial to High Automation ............................ 457
Patrice Reilhac, Katharina Hottelart, Frederik Diederichs and Christopher Nowakowski

18 AutoPlay: Unfolding Motivational Affordances of Autonomous Driving ............................................. 483
Sven Krome, Jussi Holopainen and Stefan Greuter

Erratum to: AutoPlay: Unfolding Motivational Affordances of Autonomous Driving .................................. E1
Sven Krome, Jussi Holopainen and Stefan Greuter
Automotive User Interfaces
Creating Interactive Experiences in the Car
Meixner, G.; Müller, C. (Eds.)
2017, IX, 510 p. 162 illus., 139 illus. in color., Hardcover
ISBN: 978-3-319-49447-0