

Contents

Part I Introduction and Basics

- 1 Retrospective and Future Automotive Infotainment Systems—100 Years of User Interface Evolution 3**
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 55**
Fabius Steinberger, Ronald Schroeter and Diana Babiac

Part II Usability and User Experience

- 3 Driver and Driving Experience in Cars 79**
Klaus Bengler
- 4 “It’s More Fun to Commute”—An Example of Using Automotive Interaction Design to Promote Well-Being in Cars 95**
Marc Hassenzahl, Matthias Laschke, Kai Eckoldt, Eva Lenz and Josef Schumann
- 5 Design to Support Energy Management for Electric Car Drivers 121**
Anders Lundström and Cristian Bogdan
- 6 Cultural User Experience in the Car—Toward a Standardized Systematic Intercultural Agile Automotive UI/UX Design Process 143**
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
- 11 Driver in the Loop: Best Practices in Automotive Sensing and Feedback Mechanisms** 295
Andreas Riener, Myoungsoon 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



<http://www.springer.com/978-3-319-49447-0>

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