## Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreword</td>
<td>ix</td>
</tr>
<tr>
<td>Acknowledgments</td>
<td>xi</td>
</tr>
<tr>
<td>Editors</td>
<td>xiii</td>
</tr>
<tr>
<td>Contributors</td>
<td>xv</td>
</tr>
</tbody>
</table>

**PART 1  Introduction**

Chapter 1  Introduction ............................................................................ 3  
*Michael A. Regan, Kristie L. Young, and John D. Lee*

**PART 2  Definitions, Theories, and Models of Driver Distraction**

Chapter 2  On the Philosophical Foundations of the Distracted Driver and Driving Distraction ........................................ 11  
*Peter A. Hancock, Mustapha Mouloua, and John W. Senders*

Chapter 3  Defining Driver Distraction ................................................. 31  
*John D. Lee, Kristie L. Young, and Michael A. Regan*

Chapter 4  What Drives Distraction? Distraction as a Breakdown of Multilevel Control ................................................. 41  
*John D. Lee, Michael A. Regan, and Kristie L. Young*

Chapter 5  Models of Attention, Distraction, and Highway Hazard Avoidance .............................................................. 57  
*Christopher D. Wickens and William J. Horrey*

**PART 3  Measurement of Driver Distraction**

Chapter 6  Measuring Exposure to Driver Distraction ............................. 73  
*Suzanne P. McEvoy and Mark R. Stevenson*
## Contents

### Part 3 Effects of Distraction on Driving Performance

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>Measuring the Effects of Driver Distraction: Direct Driving Performance Methods and Measures</td>
<td>Kristie L. Young, Michael A. Regan, and John D. Lee</td>
</tr>
<tr>
<td>8</td>
<td>Surrogate Distraction Measurement Techniques: The Lane Change Test</td>
<td>Stefan Mattes and Anders Hallén</td>
</tr>
<tr>
<td>9</td>
<td>Now You See It, Now You Don’t: Visual Occlusion as a Surrogate Distraction Measurement Technique</td>
<td>James P. Foley</td>
</tr>
<tr>
<td>10</td>
<td>Distraction Assessment Methods Based on Visual Behavior and Event Detection</td>
<td>Trent W. Victor, Johan Engström, and Joanne L. Harbluk</td>
</tr>
</tbody>
</table>

### PART 4 Effects of Distraction on Driving Performance

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>Cellular Phones and Driver Distraction</td>
<td>Frank A. Drews and David L. Strayer</td>
</tr>
<tr>
<td>12</td>
<td>Sources of Distraction inside the Vehicle and Their Effects on Driving Performance</td>
<td>Megan Bayly, Kristie L. Young, and Michael A. Regan</td>
</tr>
<tr>
<td>13</td>
<td>Distractions outside the Vehicle</td>
<td>Tim Horberry and Jessica Edquist</td>
</tr>
<tr>
<td>14</td>
<td>Distraction and Public Transport: Case Study of Bus Driver Distraction</td>
<td>Paul M. Salmon, Kristie L. Young, and Michael A. Regan</td>
</tr>
</tbody>
</table>

### PART 5 Distraction, Crashes, and Crash Risk

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>Sources of Driver Distraction</td>
<td>Michael A. Regan, Kristie L. Young, John D. Lee, and Craig P. Gordon</td>
</tr>
</tbody>
</table>
Chapter 16  Crash Studies of Driver Distraction .................. 281
   Craig P. Gordon

Chapter 17  Epidemiological Research on Driver Distraction ............. 305
   Suzanne P. McEvoy and Mark R. Stevenson

Chapter 18  Driver Distraction Exposure Research: A Summary of Findings ... 319
   Kristie L. Young and Michael A. Regan

PART 6  Factors Mediating the Effects of Distraction

Chapter 19  Factors Moderating the Impact of Distraction on Driving Performance and Safety .................. 335
   Kristie L. Young, Michael A. Regan, and John D. Lee

Chapter 20  Distraction and the Older Driver .......................... 353
   Sjaanie Koppel, Judith L. Charlton, and Brian Fildes

Chapter 21  The Relationship between Driver Fatigue and Driver Distraction .......................... 383
   Ann Williamson

PART 7  Design and Standardization

Chapter 22  European Approaches to Principles, Codes, Guidelines, and Checklists for In-Vehicle HMI ............... 395
   Alan Stevens

Chapter 23  North American Approaches to Principles, Codes, Guidelines, and Checklists for In-Vehicle HMI .................. 411
   Peter C. Burns

Chapter 24  Japanese Approaches to Principles, Codes, Guidelines, and Checklists for In-Vehicle HMI .................. 425
   Motoyuki Akamatsu

Chapter 25  Driver Interface Safety and Usability Standards: An Overview ...... 445
   Paul Green
PART 8 Prevention and Mitigation Strategies

Chapter 26 Real-Time Distraction Countermeasures .................................................. 465
Johan Engström and Trent W. Victor

Chapter 27 Driving Task Demand–Based Distraction Mitigation ............................... 485
Harry Zhang, Matthew R.H. Smith, and Gerald J. Witt

Chapter 28 Adapting Collision Warnings to Real-Time
Estimates of Driver Distraction ................................................................. 501
Matthew R.H. Smith, Gerald J. Witt, Debbie L. Bakowski,
Dave Leblanc, and John D. Lee

Chapter 29 Designing Feedback to Mitigate Distraction .......................................... 519
Birsen Donmez, Linda Boyle, and John D. Lee

Chapter 30 Driver Distraction Injury Prevention Countermeasures—Part 1:
Data Collection, Legislation and Enforcement, Vehicle Fleet
Management, and Driver Licensing ............................................................. 533
Michael A. Regan, Kristie L. Young, and John D. Lee

Chapter 31 Driver Distraction Injury Prevention
Countermeasures—Part 2: Education and Training ........................................ 559
Michael A. Regan, John D. Lee, and Kristie L. Young

Chapter 32 Driver Distraction Injury Prevention Countermeasures—Part 3:
Vehicle, Technology, and Road Design ....................................................... 579
Michael A. Regan, Trent W. Victor, John D. Lee,
and Kristie L. Young

Chapter 33 Government and Industry Perspectives on Driver Distraction .......... 603
Claes Tingvall, Lutz Eckstein, and Mike Hammer

PART 9 Conclusions

Chapter 34 Some Concluding Remarks .............................................................. 621
Michael A. Regan, Kristie L. Young, and John D. Lee

Index ................................................................................................................. 631