## Contents

**Part I  Space for Mobility and Its Conscious Perception**

- *Living in Space. A Phenomenological Account* .......................................................... 3  
  Gunnar Declerck and Charles Lenay  
- *Technologies to Access Space Without Vision. Some Empirical Facts and Guiding Theoretical Principles* ........................................... 53  
  Charles Lenay and Gunnar Declerck  
- *Mobility Technologies for Visually Impaired People Through the Prism of Classic Theories of Perception* .............................................. 77  
  Marion Chottin

**Part II  Neuro-cognitive Basis of Space Perception for Mobility**

- *The Multisensory Blind Brain* .................................................................................. 111  
  Vanessa Harrar, Sébrina Aubin, Daniel-Robert Chebat, Ron Kupers and Maurice Ptito  
- *On Spatial Cognition and Mobility Strategies* ....................................................... 137  
  Edwige Pissaloux and Ramiro Velázquez  
- *Sensory Substitution and the Neural Correlates of Navigation in Blindness* ................................................................. 167  
  Daniel-Robert Chebat, Vanessa Harrar, Ron Kupers, Shachar Maidenbaum, Amir Amedi and Maurice Ptito  
- *Visuo-Vestibular and Somesthetic Contributions to Spatial Navigation in Children and Adults* ......................................................... 201  
  Irini Giannopulu
Part III Mobility of the Visually Impaired

Orientation and Mobility Training to People with Visual Impairments ................................................ 237
Mira Goldschmidt

Spatial Orientation in Children: A Typological Approach ............... 263
Krystyna Nawrocka-Łabuś

Scene Representation for Mobility of the Visually Impaired ............ 283
Guillaume Tatur

Model of Cognitive Mobility for Visually Impaired and its Experimental Validation ................................ 311
Edwige Pissaloux and Ramiro Velázquez

Solid: A Model to Analyse the Accessibility of Transport Systems for Visually Impaired People .................. 353
Gérard Uzan and Peter Wagstaff

Part IV ICT Technologies and Mobility

Mobility Technologies for Blind, Partially Sighted and Deafblind People: Design Issues ............................. 377
M.A. Hersh

Co-designing together with Persons with Visual Impairments .......... 411
Charlotte Magnusson, Per-Olof Hedvall and Héctor Caltenco

Different Approaches to Aiding Blind Persons in Mobility and Navigation in the “Naviton” and “Sound of Vision” Projects ..... 435
P. Strumillo, M. Bujacz, P. Baranski, P. Skulimowski, P. Korbel, M. Owczarek, K. Tomalczyk, A. Moldoveanu and R. Unnthorsson

Overview of Smart White Canes: Connected Smart Cane from Front End to Back End ................................. 469
Gianmario Motta, Tianyi Ma, Kaixu Liu, Edwige Pissaloux, Muhammad Yusro, Kalamullah Ramli, Jean Connier, Philippe Vaslin, Jian-jin Li, Christophe de Vaulx, Hongling Shi, Xunxing Diao and Kun-Mean Hou

Accessible Interactive Maps for Visually Impaired Users .............. 537
Julie Ducasse, Anke M. Brock and Christophe Jouffrais

Smart Multisensor Strategies for Indoor Localization ................. 585
Bruno Andò, Salvatore Baglio, Cristian O. Lombardo and Vincenzo Marletta
Constructing Tactile Languages for Situational Awareness Assistance of Visually Impaired People ........................... 597 Ramiro Velázquez and Edwige Pissaloux

Vision Restoration with Implants ................................. 617 Akos Kusnyerik, Miklos Resch, Huba J. Kiss and Janos Nemeth

Mobility, Inclusion and Exclusion ................................. 631 M.A. Hersh

Index ................................................................. 649
Mobility of Visually Impaired People
Fundamentals and ICT Assistive Technologies
Pissaloux, E.; Velazquez, R. (Eds.)
2018, XIX, 652 p. 160 illus., 109 illus. in color., Hardcover
ISBN: 978-3-319-54444-1