

# Contents

|  |     |
|--|-----|
| List of Contributors   | vii |
| Introduction   | xi  |
| 1. Pedestrians Choices<br><i>Michel Bierlaire and Thomas Robin</i>   | 1   |
| 2. Empirical Results for Pedestrian Dynamics and their Implications for Cellular Automata Models<br><i>Andreas Schadschneider and Armin Seyfried</i>   | 27  |
| 3. Modeling, Simulating, and Visualizing Crowd Dynamics with Computational Tools Based on Situated Cellular Agents<br><i>Stefania Bandini, Sara Manzoni and Giuseppe Vizzari</i>                   | 45  |
| 4. Modeling Impulse and Non-Impulse Store Choice Processes in a Multi-Agent Simulation of Pedestrian Activity in Shopping Environments<br><i>Jan Dijkstra, Harry Timmermans and Bauke de Vries</i> | 63  |
| 5. Modeling Pedestrian Movement in Shopping Street Segments<br><i>Aloys Borgers, Astrid Kemperman and Harry Timmermans</i>   | 87  |
| 6. Simulating Pedestrian Route-Choice Behavior under Transient Traffic Conditions<br><i>Vassilis Zachariadis, James Amos and Brandon Kohn</i>  | 113 |
| 7. Modeling and Simulating Pedestrian Shopping Behavior Based on Principles of Bounded Rationality<br><i>Wei Zhu and Harry Timmermans</i>  | 137 |
| 8. A Model of Time Use and Expenditure of Pedestrians in City Centers<br><i>Junyi Zhang</i>  | 157 |

|     |   |     |
|-----|---|-----|
| 9.  | A Novel Calibration Approach of Microscopic Pedestrian Models<br><i>Serge P. Hoogendoorn and Winnie Daamen</i>  | 195 |
| 10. | Crowd Dynamics Phenomena, Methodology, and Simulation<br><i>Hubert Klüpfel</i>  | 215 |
| 11. | The MATSim Network Flow Model for Traffic Simulation Adapted to Large-Scale Emergency Egress and an Application to the Evacuation of the Indonesian City of Padang in Case of a Tsunami Warning<br><i>Gregor Lämmel, Hubert Klüpfel and Kai Nagel</i> | 245 |
| 12. | Comparative Study of Pedestrian Behavior in Central Shopping Areas of East Asian Cities<br><i>Shigeyuki Kurose, Atsushi Deguchi and Shichen Zhao</i>  | 267 |
| 13. | The Pedestrian Itinerary—Purposes, Environmental Factors and Path Decisions<br><i>John Zacharias</i>  | 283 |
| 14. | Visitors' Behavior in World Expo 2010 Shanghai: An Application of Discrete Choice Models and Web-Based Survey<br><i>De Wang, Li Ma and Wei Zhu</i>  | 307 |
| 15. | Measurement of Pedestrian Movements: A Comparative Study on Various Existing Systems<br><i>Dietmar Bauer, Norbert Brändle, Stefan Seer, Markus Ray and Kay Kitazawa</i>   | 325 |