

Contents

Part I Towards a Better Understanding of Settlements and Infrastructure

- | | | |
|---|---|----|
| 1 | Reverse Engineering of Land Cover Data: Machine Learning for Data Replication in the Spatial and Temporal Domains | 3 |
| | Galen Maclaurin and Stefan Leyk | |
| 2 | Geospatial Analysis Requires a Different Way of Thinking: The Problem of Spatial Heterogeneity | 23 |
| | Bin Jiang | |

Part II Geographic Data Mining

- | | | |
|---|---|----|
| 3 | A Survey on Spatiotemporal and Semantic Data Mining | 43 |
| | Quan Yuan, Chao Zhang, and Jiawei Han | |
| 4 | Contribution Towards Smart Cities: Exploring Block Level Census Data for the Characterization of Change in Lisbon | 59 |
| | Fernando José Ferreira Lucas Bação, Roberto Henriques, and Jorge Antunes | |
| 5 | The Application of the SPAWNN Toolkit to the Socioeconomic Analysis of Chicago, Illinois | 75 |
| | Julian Hagenauer and Marco Helbich | |

Part III Spatial Modelling, System Dynamics and Geosimulation

- | | | |
|---|---|----|
| 6 | The Evolution of the Land Development Industry: An Agent-Based Simulation Model | 93 |
| | Jonatan Almagor, Itzhak Benenson, and Daniel Czamanski | |

8	Lessons and Challenges in Land Change Modeling Derived from Synthesis of Cross-Case Comparisons	143
	Robert Gilmore Pontius Jr., Jean-Christophe Castella, Ton de Nijs, Zengqiang Duan, Eric Fotsing, Noah Goldstein, Kasper Kok, Eric Koomen, Christopher D. Lippitt, William McConnell, Alias Mohd Sood, Bryan Pijanowski, Peter Verburg, and A. Tom Veldkamp	
Part IV Multi-scale Representation and Analysis		
9	Applications of 3D City Models for a Better Understanding of the Built Environment	167
	Bruno Willenborg, Maximilian Sindram, and Thomas H. Kolbe	
10	An Automatic Approach for Generalization of Land-Cover Data from Topographic Data	193
	Frank Thiemann and Monika Sester	
11	Epilogue	209
	Denise Pumain	
Index.....		213