

Contents

1	Using Matrix Decomposition in Map Similarity Testing	1
	Jiří Dvorský, Václav Snášel, and Vít Voženílek	
1.1	Introduction	1
1.2	Singular Value Decomposition	2
1.3	Map Similarity	3
1.4	Climatic Maps	4
1.5	Experimental Results	5
	1.5.1 Influence of Accuracy of Matrix Approximation	8
1.6	Conclusion	8
	References	9
2	Characteristics of Data from Skewed Distributions	11
	Zdeněk Fabián	
2.1	Introduction	11
2.2	Description of Distributions	12
	2.2.1 Transformation-based Score	12
	2.2.2 Characteristics of Central Tendency and Dispersion	14
	2.2.3 Measure of Dependence	15
	2.2.4 Spectral Density of Time Series	15
2.3	Estimates	16
2.4	Example: the Beta-prime Distribution	17
2.5	Conclusions	21
	References	22
3	Complex Tree-Based Classification Models in GIS	23
	Jan Klaschka	
3.1	Introduction	23
3.2	Classification Basics	24
3.3	Decision (Classification) Trees	24
3.4	Forests	28
	3.4.1 Four Methods of Forest Construction	28

	3.4.2	Forests and Instability of Trees
	3.4.3	Software for Forests
3.5		Combining Classification Forests
	3.5.1	Global, Local and Mixed Models
	3.5.2	Mixed Models – General Framework
	3.5.3	Model search strategies
	3.5.4	Empirical experience
3.6		Conclusion
		References
4		Dimensionality Reduction via Ordinal Variables Clustering
		Hana Řezančová, Dušan Húsek, and Michaela Ryšánková
	4.1	Introduction
	4.2	Similarity Measures for Ordinal Variables
	4.3	Methods for Searching Groups of Similar Variables
	4.4	Basic Algorithms for Fuzzy Clustering and Visualization Results ..
	4.5	Ensembles of Fuzzy Clustering and Similarity of Fuzzy Clusters ..
	4.6	Cluster Number Determination
	4.7	Applications to Real Data File
	4.8	Conclusion
		References
5		Artificial Intelligence and GIS: Mutual Meeting and Passing
		Vít Voženílek
	5.1	Introduction
	5.2	Intersections of Artificial Intelligence and GIS
	5.3	AI and GIS Convergence
	5.4	Goals of AI in GIS
	5.5	AI and GIS – Together or Apart?
	5.6	Conclusions
		References