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2.9.2.3 Random Forest and Random Subspace Projection 2.9.2.4 Non-Linear Boosting Projection (NLBP); 2.9.2.5 Cross-validated Committees; 2.9.2.6 Robust Boosting; 2.10 Ensemble Methods for Advanced Classification Tasks; 2.10.1 Cost-Sensitive Classification; 2.10.2 Ensemble for Learning Concept Drift; 2.10.3 Reject Driven Classification; 3. Ensemble Classification; 3.1 Fusions Methods; 3.1.1 Weighting Methods; 3.1.2 Majority Voting; 3.1.3 Performance Weighting; 3.1.4 Distribution Summation; 3.1.5 Bayesian Combination; 3.1.6 Dempster-Shafer; 3.1.7 Voting; 3.1.8 Naive Bayes 3.1.9 Entropy Weighting 3.1.10 Density-based Weighting; 3.1.11 DEA Weighting Method; 3.1.12 Logarithmic Opinion Pool; 3.1.13 Order Statistics; 3.2 Selecting Classification; 3.2.1 Partitioning the Instance Space; 3.2.1.1 The K-Means Algorithm as a Decomposition Tool; 3.2.1.2 Determining the Number of Subsets; 3.2.1.3 The Basic K-Classifer Algorithm; 3.2.1.4 The Heterogeneity Detecting K-Classifier (HDK-Classifier); 3.2.1.5 Running-Time Complexity; 3.3 Mixture of Experts and Meta Learning; 3.3.1 Stacking; 3.3.2 Arbiter Trees; 3.3.3 Combiner Trees; 3.3.4 Grading; 3.3.5 Gating Network 4. Ensemble Diversity 4.1 Overview; 4.2 Manipulating the Inducer; 4.2.1 Manipulation of the Inducer's Parameters; 4.2.2 Starting Point in Hypothesis Space; 4.2.3 Hypothesis Space Traversal; 4.3 Manipulating the Training Samples; 4.3.1 Resampling; 4.3.2 Creation; 4.3.3 Partitioning; 4.4 Manipulating the Target Attribute Representation; 4.4.1 Label Switching; 4.5 Partitioning the Search Space; 4.5.1 Divide and Conquer; 4.5.2 Feature Subset-based Ensemble Methods; 4.5.2.1 Random-based Strategy; 4.5.2.2 Reduct-based Strategy; 4.5.2.3 Collective-Performance-based Strategy 4.5.2.4 Feature Set Partitioning

Sommario/riassunto

Researchers from various disciplines such as pattern recognition, statistics, and machine learning have explored the use of ensemble methodology since the late seventies. Thus, they are faced with a wide variety of methods, given the growing interest in the field. This book aims to impose a degree of order upon this diversity by presenting a coherent and unified repository of ensemble methods, theories, trends, challenges and applications. The book describes in detail the classical methods, as well as the extensions and novel approaches developed recently. Along with algorithmic descriptions
