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Sommario/riassunto

This book is the first of its kind to discuss error estimation with a model-based approach. From the basics of classifiers and error estimators to more specialized classifiers, it covers important topics and essential issues pertaining to the scientific validity of pattern classification. Error Estimation for Pattern Recognition focuses on error estimation, which is a broad and poorly understood topic that reaches all research areas using pattern classification. It includes model-based approaches and discussions of newer error estimators such as bolstered and Bayesian estimators. This book was motivated by the application of pattern recognition to high-throughput data with limited replicates, which is a basic problem now appearing in many areas. The first two chapters cover basic issues in classification error estimation, such as definitions, test-set error estimation, and training-set error estimation. The remaining chapters in this book cover results on the performance and representation of training-set error estimators for various pattern classifiers. Additional features of the book include: . The latest results on the accuracy of error estimation. Performance analysis of resubstitution, cross-validation, and bootstrap error estimators using analytical and simulation approaches. Highly interactive computer-based exercises and end-of-chapter Problems This is the first book exclusively about error estimation for pattern recognition.