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6 Databases, Standards and Annotation; 6.1 Introduction; 6.2 NCBI Databases; 6.3 TheEBIDatabases; 6.4 Species-specific Databases; 6.5 Discussion and Summary; References; 7 Normalisation; 7.1 Introduction; 7.2 Issues Tackled by Normalisation; 7.3 Normalisation Methods; 7.4 Discussion and Summary; References; 8 Feature Selection; 8.1 Introduction; 8.2 FS and FG - Problem Definition; 8.3 Consecutive Ranking; 8.4 Individual Ranking
8.5 Principal Component Analysis8.6 Genetic Algorithms and Genetic Programming; 8.7 Discussion and Summary; References; 9 Differential Expression; 9.1 Introduction; 9.2 Fold Change; 9.3 Statistical Hypothesis Testing - Overview; 9.4 Statistical Hypothesis Testing - Methods; 9.5 Discussion and Summary; References; Part Four: Clustering Methods; 10 Clustering Forms; 10.1 Introduction; 10.2 Proximity Measures; 10.3 Clustering Families; 10.4 Clusters and Partitions; 10.5 Discussion and Summary; References; 11 Partitional Clustering; 11.1 Introduction; 11.2 k-Means and its Applications 11.3 k-Medoids and its Applications11.4 Discussion and Summary; References; 12 Hierarchical Clustering; 12.1 Introduction; 12.2 Principles; 12.3 Discussion and Summary; References; 13 Fuzzy Clustering; 13.1 Introduction; 13.2 Principles; 13.3 Discussion; References; 14 Neural Network-based Clustering; 14.1 Introduction; 14.2 Algorithms; 14.3 Discussion; References; 15 Mixture Model Clustering; 15.1 Introduction; 15.2 Finite Mixture Models; 15.3 Infinite Mixture Models; 15.4 Discussion; References; 16 Graph Clustering; 16.1 Introduction; 16.2 Basic Definitions; 16.3 Graph Clustering 16.4 Resources

Sommario/riassunto

Clustering techniques are increasingly being put to use in the analysis of high-throughput biological datasets. Novel computational techniques to analyse high throughput data in the form of sequences, gene and protein expressions, pathways, and images are becoming vital for understanding diseases and future drug discovery. This book details the complete pathway of cluster analysis, from the basics of molecular biology to the generation of biological knowledge. The book also presents the latest clustering methods and clustering validation, thereby offering the reader a comprehensive review o
