## XIAOHUA HU, YI PAN (EDITORS)

## KNOWLEDGE DISCOVERY IN BIOINFORMATICS TECHNIQUES, METHODS, AND APPLICATIONS



ISBN: 978-0-471-77796-0 Wiley InterScience New Jersey, 2007

Presented book, titled Knowledge Discovery in **Bioinformatics** Techniques, \_ Methods, and Applications is an edited book that brings together the ideas and findings of data mining researchers and bioinformaticians by discussing cutting-edge research topics. Data mining in bioinformatics holds the promise of solving such a fundamental problems as protein structure, gene finding, data retrieval, and integration. Therefore this book is an essential reading for all researchers in bioinformatics. This pioneering text brings together an unparalleled group of leading experts in both data mining and informatics, presenting a broad range of novel methods, techniques, and applications of data mining for the analysis and management of bioinformatics data sets. The edited book comprises the following topics:

- RNA and protein structure analysis
- DNA computing
- Sequence mapping and genome comparison
- Gene expression data mining
- Metabolic network modeling
- Phyloinformatics
- Biomedical literature data mining
- Biological data integration and searching

For each topic, readers get an inside perspective into the latest research – what works and what doesn't and where additional research and development is needed.

## **Table of Contents**

## Preface

- 1. Current Methods for Protein Secondary-Structure Prediction Based on Support Vector Machines
- 2. Comparison of Seven Methods for Mining Hidden Links
- 3. Voting Scheme-Based Evolutionary Kernel Machines for Drug Activity Comparisons
- 4. Bioinformatics Analyses of Arabidopsis thaliana Tiling Array Expression Data
- 5. Identification of Marker Genes from High-Dimensional Microarray Data for Cancer Classification
- 6. Patient Survival Prediction from Gene Expression Data
- 7. RNA Interference and microRNA
- 8. Protein Structure Prediction Using String Kernels
- 9. Public Genomic Databases: Data Representation, Storage, and Access
- 10. Automatic Query Expansion with Keyphrases and POS Phrase Categorization for Effective Biomedical Text
- 11. Evolutionary Dynamics of Protein-Protein Interactions
- 12. On Comparing and Visualizing RNA Secondary Structures
- 13. Integrative Analysis of Yeast Protein Translation Networks
- 14. Identification of Transmembrane Proteins Using Variants of the Self-Organizing Feature Map Algorithm
- 15. TRICLUSTER: Mining Coherent Clusters in Three-Dimensional Microarray Data
- 16. Clustering Methods in a Protein–Protein Interaction Network