

Data Analysis and Visualization in Genomics and Proteomics

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This book provides scientists and students with the basis for the development of integrative computational approaches to analysing biological data on a systemic scale. It emphasises the processing of multiple data and knowledge resources, and the combination of different prediction models and systems. It covers different data analysis and visualization techniques for studying the roles of genes and proteins at a systems level. A fairly broad definition for the areas of genomics and proteomics is adopted, which also encompasses a wider spectrum of 'omic' approaches required to understand the functions of genes and their products.

From a bioinformatics point of view, the book illustrates: how data analysis techniques can facilitate more comprehensive, user-friendly data visualization tasks; how data visualization methods may make data analysis a more meaningful and biologically relevant process; and how to approach the overabundance of data in genomic studies, in which spurious associations often occur, with the proper statistical tools. The book describes how this synergy may support integrative approaches to functional genomics.

The book will be of interest to all bioinformaticians, from students to researchers, as well as to many scientists working in genomics, proteomics, systems biology and related areas.

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