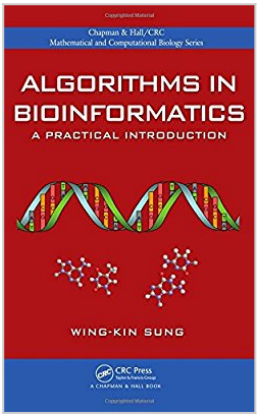

Algorithms in Bioinformatics: A Practical Introduction (Chapman & Hall/CRC Mathematical and Computational Biology)

By Wing-Kin Sung

Algorithms in Bioinformatics: A Practical Introduction (Chapman & Hall/CRC Mathematical and Computational Biology) By Wing-Kin Sung

Thoroughly Describes Biological Applications, Computational Problems, and Various Algorithmic Solutions

Developed from the author's own teaching material, **Algorithms in Bioinformatics: A Practical Introduction** provides an in-depth introduction to the algorithmic techniques applied in bioinformatics. For each topic, the author clearly details the biological motivation and precisely defines the corresponding computational problems. He also includes detailed examples to illustrate each algorithm and end-of-chapter exercises for students to familiarize themselves with the topics. Supplementary material is available at http://www.comp.nus.edu.sg/~ksung/algo_in_bioinfo/

This classroom-tested textbook begins with basic molecular biology concepts. It then describes ways to measure sequence similarity, presents simple applications of the suffix tree, and discusses the problem of searching sequence databases. After introducing methods for aligning multiple biological sequences and genomes, the text explores applications of the phylogenetic tree, methods for comparing phylogenetic trees, the problem of genome rearrangement, and the problem of motif finding. It also covers methods for predicting the secondary structure of RNA and for reconstructing the peptide sequence using mass spectrometry. The final chapter examines the computational problem related to population genetics.

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Editorial Review

Review

This aptly titled book is a timely publication that details several algorithms widely used in bioinformatics. … This work can serve as a reference guide for students and researchers attempting to implement or learn algorithms relevant to bioinformatics. Although some concepts referenced in the book specifically target advanced bioinformatics experts, general users should not be discouraged from reading this work. …Summing Up: Recommended.
?*CHOICE*, June 2010

… an excellent guide. The book is appropriate for advanced undergraduates and graduates in mathematics or CS. … The 27-page introduction is the most efficient concept-building summary and explication of molecular biology that I have encountered. … Section 1.8 sets a new, high standard for science-history exposition, covering Gregor Mendel to the present. …This self-contained, well-designed, and well-written book, with its many good exercises, bibliographic references, and photo-quality figures, is an ideal introduction to bioinformatics.
?George Hacken, *Computing Reviews*, March 2010

About the Author

Wing-Kin Sung is an associate professor at the National University of Singapore.

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