Distributed and sequential algorithms for bioinformatics

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Abstrak

This unique textbook/​reference presents unified coverage of bioinformatics topics relating to both biological sequences and biological networks, providing an in-depth analysis of cutting-edge distributed algorithms, as well as of relevant sequential algorithms. In addition to introducing the latest algorithms in this area, more than fifteen new distributed algorithms are also proposed. Topics and features: Reviews a range of open challenges in biological sequences and networks, beginning with an informal description of the problem before defining it formally Describes in detail both sequential and parallel/​distributed algorithms for each problem, briefly discussing software packages if there are any available Suggests approaches for distributed algorithms as possible extensions to sequential algorithms, when the distributed algorithms for the topic are scarce Proposes a number of new distributed algorithms in each chapter, to serve as potential starting points for further research Concludes each chapter with self-test exercises, a summary of the key points, a comparison of the algorithms described, and a literature review This clearly-written and easy to follow work is ideal as a textbook for graduate and senior undergraduate students of computer science and biology, and as a self-study guide for any interested reader with a basic background in discrete mathematic s and algorithms. Researchers in bioinformatics will also find the book to be a useful reference on this subject. Dr. K. Erciyes is Rector of Izmir University, Turkey, where he also serves as a professor in the Computer Engineering Department. His other publications include the Springer title Distributed Graph Algorithms for Computer Networks.