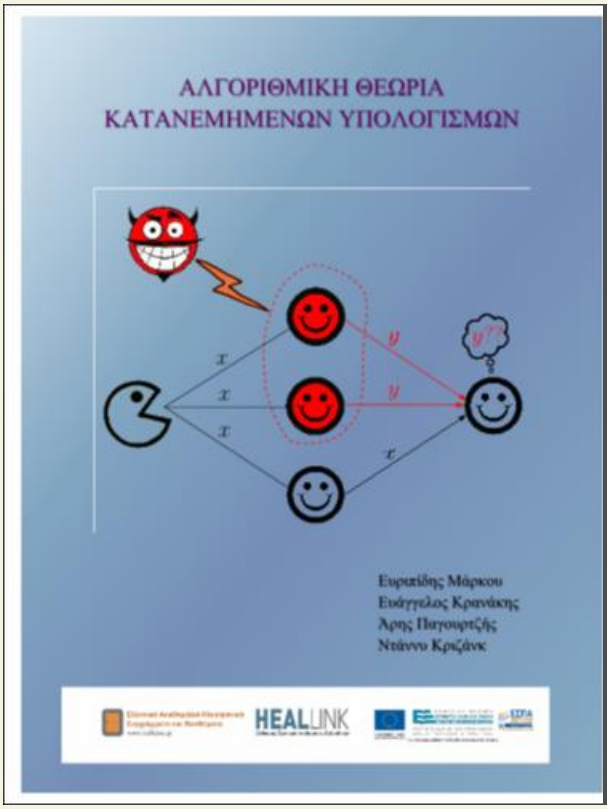

METADATA

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Abstract

This book is addressed to undergraduate and graduate students in computer science and mathematics who are studying topics related to algorithm design and analysis. It can be used by both those unfamiliar with the field and advanced scientists in the areas of Theoretical Computer Science, particularly in the fields of Algorithm Design, Computation Theory, Artificial Intelligence, and Robotics. Readers will find in this book the necessary material to understand concepts related to: - Distributed algorithms. - Mobile agents. - Complexity of goods in distributed computing. - Timing models for distributed models. - Basic problems and distributed algorithms. - Problem reductions, correctness proofs, and complexity analysis of algorithms. - Approximation with quality guarantees for difficult (NP-hard) problems. - Network and agent security issues. Particular emphasis is placed on the presentation and understanding of theoretical models. With these models we can design optimal distributed algorithms that solve realistic problems and it is also possible to highlight the advantages of distributed methods over parallel and serial algorithms. The book focuses particularly on problem solving using mobile agents. Extensive reference is made to the applications of the problem models presented. The algorithms are presented in pseudolanguage, while the proofs of correctness and complexity of the algorithms, as well as the proofs of negative results, are given in a standard manner so that undergraduate students can easily follow them. At the end of each chapter, there are comments and bibliographical references, as well as exercises that help to understand thouroughly not only the methods of designing distributed algorithms but also their analysis.

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