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| Soggetti | Computer programming Computer science Algorithms Numerical analysis Computer science—Mathematics Discrete mathematics Programming Techniques Theory of Computation Numerical Analysis Discrete Mathematics in Computer Science |
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| Nota di contenuto | Basics on Multiobjective Optimization -- to Multiobjective Optimization: Noninteractive Approaches -- to Multiobjective Optimization: Interactive Approaches -- to Evolutionary Multiobjective Optimization -- Recent Interactive and Preference-Based Approaches -- Interactive Multiobjective Optimization Using a Set of Additive Value Functions -- Dominance-Based Rough Set Approach to Interactive Multiobjective Optimization -- Consideration of Partial User Preferences in Evolutionary Multiobjective Optimization -- Interactive Multiobjective Evolutionary Algorithms -- Visualization of Solutions -- Visualization in the Multiple Objective Decision-Making Framework -- |

Visualizing the Pareto Frontier -- Modelling, Implementation and Applications -- Meta-Modeling in Multiobjective Optimization -- Real-World Applications of Multiobjective Optimization -- Multiobjective Optimization Software -- Parallel Approaches for Multiobjective Optimization -- Quality Assessment, Learning, and Future Challenges -- Quality Assessment of Pareto Set Approximations -- Interactive Multiobjective Optimization from a Learning Perspective -- Future Challenges.

Sommario/riassunto

Multiobjective optimization deals with solving problems having not only one, but multiple, often conflicting, criteria. Such problems can arise in practically every field of science, engineering and business, and the need for efficient and reliable solution methods is increasing. The task is challenging due to the fact that, instead of a single optimal solution, multiobjective optimization results in a number of solutions with different trade-offs among criteria, also known as Pareto optimal or efficient solutions. Hence, a decision maker is needed to provide additional preference information and to identify the most satisfactory solution. Depending on the paradigm used, such information may be introduced before, during, or after the optimization process. Clearly, research and application in multiobjective optimization involve expertise in optimization as well as in decision support. This state-of-the-art survey originates from the International Seminar on Practical Approaches to Multiobjective Optimization, held in Dagstuhl Castle, Germany, in December 2006, which brought together leading experts from various contemporary multiobjective optimization fields, including evolutionary multiobjective optimization (EMO), multiple criteria decision making (MCDM) and multiple criteria decision aiding (MCDA). This book gives a unique and detailed account of the current status of research and applications in the field of multiobjective optimization. It contains 16 chapters grouped in the following 5 thematic sections: Basics on Multiobjective Optimization; Recent Interactive and Preference-Based Approaches; Visualization of Solutions; Modelling, Implementation and Applications; and Quality Assessment, Learning, and Future Challenges.
