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Evolutionary algorithms for solving multi-objective problems. (English) Zbl 1130.90002

Genetic Algorithms and Evolutionary Computation 5. New York, NY: Kluwer Academic/Plenum Publishers (ISBN 0-306-46762-3/hbk). xxxvi, 576 p. (2002).

Publisher's description: The solving of multi-objective problems (MOPs) has been a continuing effort by humans in many diverse areas, including computer science, engineering, economics, finance, industry, physics, chemistry, and ecology, among others. Many powerful and deterministic and stochastic techniques for solving these large dimensional optimization problems have risen out of operations research, decision science, engineering, computer science and other related disciplines. The explosion in computing power continues to arouse extraordinary interest in stochastic search algorithms that require high computational speed and very large memories. A generic stochastic approach is that of evolutionary algorithms (EA). Such algorithms have been demonstrated to be very powerful and generally applicable for solving different single objective problems. Their fundamental algorithmic structures can also be applied to solving many multi-objective problems.

In this book, the various features of multi-objective evolutionary algorithms (MOEAs) are presented in an innovative and unique fashion, with detailed customized forms suggested for a variety of applications. Also, extensive MOEA discussion questions and possible research directions are presented at the end of each chapter.

For additional information and supplementary teaching materials, please visit the authors' website at <http://www.cs.cinvestav.mx/EVOCINV/bookinfo.html>

MSC:

- 90-02 Research exposition (monographs, survey articles) pertaining to operations research and mathematical programming
- 90C29 Multi-objective and goal programming
- 90C59 Approximation methods and heuristics in mathematical programming
- 90C15 Stochastic programming

Cited in **1** Review
Cited in **172** Documents