

Preface

Many real-world problems arising in engineering, economics, medicine, and other domains can be formulated as optimization tasks. Every day we solve optimization problems. Optimization occurs in the minimizing time and cost or the maximization of the profit, quality, and efficiency. Such problems are frequently characterized by non-convex, non-differentiable, discontinuous, noisy or dynamic objective functions and constraints which ask for adequate computational methods.

This volume is a result of very vivid and fruitful discussions held during the Workshop on Computational Optimization. The participants have agreed that the relevance of the conference topic and quality of the contributions have clearly suggested that a more comprehensive collection of extended contributions devoted to the area would be very welcome and would certainly contribute to a wider exposure and proliferation of the field and ideas.

This volume includes important real problems such as job scheduling, wildfire modeling, parameter settings for controlling different processes, capital budgeting, data mining, finding the location of sensors in a given network, identifying the conformation of molecules, algorithm correctness, decision support system, and computer memory management. Some of them can be solved applying traditional numerical methods, but others need huge amount of computational resources. Therefore, for them is more appropriate to develop an algorithm based on some metaheuristic methods such as evolutionary computation, ant colony optimization, particle swarm optimization, and constrain programming.

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