

Non-convex Multi-objective Optimization

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Abstract

Many practical optimization problems involve more than one conflicting objectives. In such a case there is no single optimal solution to a given multi-objective optimization problem, therefore the aim of such problems is to find the Pareto set of non-dominated solutions. Many methods convert the multi-objective optimization problem into a set of single-objective problems. Apart from general disadvantages of such approaches, in non-convex multi-objective optimization even the scalarized single-objective optimization problem is not easily solved - global optimization must be used. On the other hand global optimization algorithms may be adapted to multi-objective case so that their result is the Pareto set eliminating the need to solve the set of optimization problems.