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Abstract

Multicriteria optimization applications can be implemented using Pareto optimization techniques including evolutionary Multicriteria optimization algorithms. Many real world applications involve multiple objective functions and the Pareto front may contain a very large number of points. Choosing a solution from such a large set is potentially intractable for a decision maker. Previous approaches to this problem aimed to find a representative subset of the solution set.

Clustering techniques can be used to organize and classify the solutions. A Evolutionary algorithm-based k-means clustering technique is proposed in this paper. The searching capability of Evolutionary algorithms is exploited in order to search for appropriate cluster centres in the feature space such that a similarity metric of the resulting clusters is optimized. The chromosomes, which are represented as strings of real numbers, encode the centres of a fixed number of clusters. Applicability of this methodology for various applications and in a decision support system is also discussed.

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