MinCenter: using clustering in global optimization

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Abstract

A common problem arises in many scientific fields is that of locating the global minimum of a multimodal function. A novel clustering technique that tackles this problem is introduced here. The proposed method creates clusters from uniform samples of the objective function with the usage of the Kmeans clustering technique. For every cluster a center is created. Finally, a simple rejection procedure is applied to the created clusters in order to remove clusters that are close to others. The proposed method is tested on a series of well - known optimization problems from the relevant literature and the results are reported and compared against the simple Multistart global optimization method.

Keywords: Global optimization, clustering, hubrid methods, numerical methods.

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