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Metaheuristics to Automatic Clustering Problem

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The Automatic Clustering Problem (PCA) is an generalization of the Clustering Problem (PC) where the number of clusters to be gotten of a data set is not previously known as parameter of the algorithm, presenting with this, a superior complexity to the PC. Even so the Clustering Problem already has been sufficient explored by researchers of many areas, like mathematics, statistics and computation the majority of the works seen in the literature approach the case that the number of clusters are previously fixed by the user. However in many real aplications, the number of clusters is a variable that have to be determined by the algorithm. In this work we present an Construtive Evolutionary Algorithm and a algorithm using concepts of the Simulated Annealing to PCA. The performance of the considered algorithms had been analyzed by two ways. Initially they had been compared with instances of literature and others generated aleatoriamente. The results show a clear superiority of our algorithms in terms of the quality of the generated solutions. In one second analysis, we evaluate the convergence of the algorithms considered for defined sub-excellent white values previously fixed. The results show that the algorithms are robust, presenting a very steady performance in different simulations.