Performance Analysis of Clustering Based Genetic Algorithm

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Abstract

In this work, performance analysis of Clustering based Genetic Algorithm (CGA) proposed in the literature has been undertaken. The proposed CGA on which the performance analysis of this paper is based involve the use of two centroids based clustering technique as a new method of chromosomes selection at the reproduction stage in a typical Genetic Algorithm. Population Control and Polygamy mating techniques were introduced to improve the performance of the algorithm. Results obtained from the determination of optimal solutions to the: Sphere, Schwefel 2.4, Beale and another known optimization functions carried out in this work shows that the proposed CGA converges to global solutions within few iterations and can also be adopted for function optimization aside from the route optimization problem previously reported in Literature.

Keywords: Sociology, Statistics, Genetic algorithms, Biological cells, Optimization, Algorithm design and analysis, Wheels Clustering, Evolutionary Algorithm, Function Optimization

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