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An Optimization Algorithm Based on Dynamic Schema with Dissimilarities and Similarities of Chromosomes

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Abstract : Optimization is necessary for finding appropriate solutions to a range of real-life problems. In particular, genetic (or more generally, evolutionary) algorithms have proved very useful in solving many problems for which analytical solutions are not available. In this paper, we present an optimization algorithm called Dynamic Schema with Dissimilarity and Similarity of Chromosomes (DSDSC) which is a variant of the classical genetic algorithm. This approach constructs new chromosomes from a schema and pairs of existing ones by exploring their dissimilarities and similarities. To show the effectiveness of the algorithm, it is tested and compared with the classical GA, on 15 two-dimensional optimization problems taken from literature. We have found that, in most cases, our method is better than the classical genetic algorithm.

Keywords : chromosome injection, dynamic schema, genetic algorithm, similarity and dissimilarity
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