

A refined differential evolution algorithm for improving the performance of optimization process

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ABSTRACT

Various Artificial Intelligent (AI) algorithms can be applied in solving optimization problems. Among the latest Evolutionary Algorithms (EA) have been developed is Differential Evolution (DE). DE is developed based on an improved Genetic Algorithm and come with different strategies for faster optimization. However, the population trapped in local optimality and premature convergence to cause in DE algorithm have cause poor performance during optimization process. To overcome the drawbacks, mixed population update and bounce back strategy were introduced to modify and improve current DE algorithm. A Himmelblau function and real case from engineering problem were used to show the performance improvements of refined DE in optimization process.

KEYWORDS:

Differential Evolution; missed population; bounce back; Himmelblau function

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