

## A Multi-Population DE with Adaptive Mutation and Local Search for Global Optimization

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**Abstract :** This paper proposes a multi-population DE with adaptive mutation and local search for global optimization, named AMMADE. In order to better coordinate the cooperation between the populations and the rational use of resources. In AMMADE, the population is divided based on the Euclidean distance sorting method at each generation to appropriately coordinate the cooperation between subpopulations and the usage of resources, such that the best-performed subpopulation will get more computing resources in the next generation. Further, an adaptive local search strategy is employed on the best-performed subpopulation to achieve a balanced search. The proposed algorithm has been tested by solving optimization problems taken from CEC2014 benchmark problems. Experimental results show that our algorithm can achieve a competitive or better than related methods. The results also confirm the significance of devised strategies in the proposed algorithm.

**Keywords :** differential evolution, multi-mutation strategies, memetic algorithm, adaptive local search

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