A modified bats echolocation-based algorithm for solving constrained optimisation problems

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Abstract: A modified adaptive bats sonar algorithm (MABSA) is presented that utilises the concept of echolocation of a colony of bats to find prey. The proposed algorithm is applied to solve the constrained optimisation problems coupled with penalty function method as constraint handling technique. The performance of the algorithm is verified through rigorous tests with four constrained optimisation benchmark test functions. The acquired results show that the proposed algorithm performs better to find optimum solution in terms of accuracy and convergence speed. The statistical results of MABSA to solve all the test functions also has been compared with the results from several existing algorithms taken from literature on similar test functions. The comparative study has shown that MABSA outperforms other establish algorithms, and thus, it can be an efficient alternative method in the solving constrained optimisation problems.

Keywords: modified adaptive bats sonar algorithm; MABSA; bats echolocation; constrained optimisation problems.

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