Improved Onlooker Bee Phase in Artificial Bee Colony Algorithm

Abstract

Artificial Bee Colony (ABC) is a distinguished optimization strategy that can resolve nonlinear and multifaceted problems. It is comparatively a straightforward and modern population based probabilistic approach for comprehensive optimization. In the vein of the other population based algorithms, ABC is moreover computationally classy due to its slow nature of search procedure. The solution exploration equation of ABC is extensively influenced by an arbitrary quantity which helps in exploration at the cost of exploitation of the better search space. In the solution exploration equation of ABC due to the outsized step size the chance of skipping the factual solution is high. Therefore, here this paper improve onlooker bee phase with help of a local search strategy inspired by memetic algorithm to balance the diversity and convergence capability of the ABC. The proposed algorithm is named as Improved Onlooker Bee Phase in ABC (IoABC). It is tested over 12 well known un-biased test problems of diverse complexities and two engineering optimization problems; results show that the anticipated algorithm go one better than the basic ABC and its recent deviations in a good number of the experiments.
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