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Abstract

Very recently bat inspired algorithms have gained increasing attention as a powerful technique for solving optimization problems. Bat algorithm (BA) is the first one in this group. It is based on the echolocation behavior of bats. BA is very good at exploitation however it is generally poor at exploration. Dynamic Virtual Bats Algorithm (DVBA) is another bat inspired algorithm, which is proposed lately. Although the algorithm is fundamentally inspired from BA, it is conceptually very different. DVBA employs just two bats and uses role based search mechanism. It is very efficient in exploration but relatively poor in exploitation, when it comes to high dimensional problems. In this paper, a novel micro-bat algorithm (BA) is proposed which possess the advantages of both algorithms. BA employs a very small population compared to its classical version. It combines the swarming technique of bats in Bat Algorithm with the role based search in Dynamic Virtual Bats Algorithm. Our empirical results demonstrate that the proposed BA achieves a good balance between exploration and exploitation. And it exhibits a better overall performance than the standard BA with larger and smaller populations on high dimensional problems.

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