

**Yu, Shuhao; Yang, Shanlin; Su, Shoubao****Self-adaptive step firefly algorithm.** (English) Zbl 1397.90419

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Summary: In the standard firefly algorithm, each firefly has the same step settings and its values decrease from iteration to iteration. Therefore, it may fall into the local optimum. Furthermore, the decreasing of step is restrained by the maximum of iteration, which has an influence on the convergence speed and precision. In order to avoid falling into the local optimum and reduce the impact of the maximum of iteration, a self-adaptive step firefly algorithm is proposed in the paper. Its core idea is setting the step of each firefly varying with the iteration, according to each firefly's historical information and current situation. Experiments are made to show the performance of our approach compared with the standard FA, based on sixteen standard testing benchmark functions. The results reveal that our method can prevent the premature convergence and improve the convergence speed and accurateness.

**MSC:**

90C59 Approximation methods and heuristics in mathematical programming

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