Extended Bat Algorithm (EBA) as an Improved Searching Optimization Algorithm

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Abstract. This paper presents a new searching technique by using a new variant of Bat Algorithm (BA) known as Extended Bat Algorithm (EBA). EBA introduces the spiral searching method instead of randomly searching used in original BA. Spiral searching method taken from Spiral Dynamic Algorithm (SDA) is performed to improve the accuracy and efficiency of the original algorithm such as stabilizing the convergence when reaching ideal value. EBA conserves the robustness of BA and SDA and increases the performance of the proposed algorithm. The proposed algorithm is tested by using numerical experiments with three different objective functions. The results show that EBA outperforms original Bat Algorithm (BA) and Particle Swarm Optimization (PSO) in almost test functions and successfully optimizes the numerical problems.

Keywords: Extended Bat Algorithm, Spiral Searching Method, Engineering Optimization.