Abstract

Artificial Bee Colony (ABC) algorithm simulates the foraging behavior of honey bee colonies. ABC is an optimization technique, which is used in finding the best solution from all feasible solutions. However, there is still an insufficiency in ABC regarding improvement in exploitation and convergence speed. In order to improve the performance of ABC we embedded PSO into ABC. As PSO has memory, knowledge of good solutions is retained by all the particles. In addition, to improve the convergence speed, the initial population of food sources is produced using the union of random generated population using random numbers and chaotic systems. This modification in basic ABC results in new search mechanism, ISBC (Improved Scout Bee Colony). Experiments are conducted on a set of 6 shifted benchmark functions. The results demonstrate good performance of ISBC in solving complex numerical optimization problems when compared with two ABC-based algorithms.
References

Improved Swarm Bee Algorithm for Global Optimization

Press.

Index Terms

Computer Science

Emerging Trends in Technology

Keywords