Abstract

Nature-inspired algorithms have gained immense popularity in recent years to tackle hard real world (NP hard and NP complete) problems and solve complex optimization functions whose actual solution doesn’t exist. The paper presents a comprehensive review of 12 nature inspired algorithms. This study provides the researchers with a single platform to analyze the conventional and contemporary nature inspired algorithms in terms of required input parameters, their key evolutionary strategies and application areas. A list of automated toolboxes available for directly evaluating these nature inspired algorithms over numerical optimization problems indicates the need for unified toolbox for all nature inspired algorithms. It also elucidates the users with the minimum and maximum dimensions over which these algorithms have already been evaluated on benchmark test functions. Hence this study would aid the research community to know what all algorithms could be examined for large scale global optimization to overcome the problem of ‘curse of dimensionality’.

References

- M. Molga and C. Smutnicki, "Test functions for optimization needs,"

kwietnia, 2005.
- P. Moscato and MG. Norman, "A memetic approach for the traveling salesman problem implementation of a computational ecology for combinatorial optimization on message-passing systems", International conference on parallel computing and transputer...

application, 1992, pp. 177–86.

- H. Banati and M. Bajaj, "Firefly based feature selection approach", Int. J.
- S. S. Travessa, W. P. Carpes and M. A. Nunes Filho, "Use of an Artificial Neural Network-based metamodel in the optimization by Particle Swarm Optimization method", Universidade Federal de Santa Catarina.

Index Terms

Computer Science
Algorithms

Keywords
Nature inspired algorithm, key evolutionary strategies, automated toolboxes, benchmark test function.