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Comparative Study of Recent Swarm Algorithms for Continuous Optimization

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Abstract

Optimization is a problem of finding the best solution from various possible solutions. In solving optimization problems, collective intelligence algorithms are often used as a method for finding solutions to optimization problems. This is because collective intelligence has various algorithms to search for various types of continuous optimization problems. However, not all of these algorithms work with the same performance. An algorithm can work better for a problem than other algorithms. Therefore, the diversity of performance of this algorithm must be identified, analyzed, and compared. By knowing the strengths, weaknesses, nature, and behaviour of the algorithm in solving various problems, this is believed to be able to realize the use of more effective algorithms in solving various problems. In this paper, Dragonfly Algorithm (DA), Grey Wolf Algorithm (GWO), and Rao Algorithms are carefully investigated using nine benchmark functions. The result indicates that Rao generally performed better than GWO and DA. DA is outperformed by GWO and Rao in reaching the convergence score, although DA has an edge in searching a large search space, and in theory, given enough population, DA can perform better than GWO or Rao.

Keywords: Collective intelligence ; Comparison ; Continuous Optimization ; Swarm Algorithm ;