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EDITORIAL

Bio-Inspired Optimization in Engineering and Sciences

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Bio-inspired optimization algorithms [1,2] are a set of optimization algorithms inspired by natural phenomena, such as evolutionary processes, social behaviours, and swarm intelligence [3]. These algorithms attempt to simulate these processes to solve optimization problems [4,5].

Classical bio-inspired algorithms include genetic algorithm, ant colony optimization, artificial bee colony, particle swarm optimization, firefly algorithm, Japanese tree frog algorithm, Harris hawks optimization [6], slime mould algorithm [7], grey wolf optimization, sparrow search algorithm, whale optimization algorithm, etc. Fig. 1 shows the taxonomy of common bio-inspired optimization algorithms. There are some recent newly proposed bio-inspired algorithms, such as Siberian tiger optimization [8], jellyfish search algorithm [9], etc.

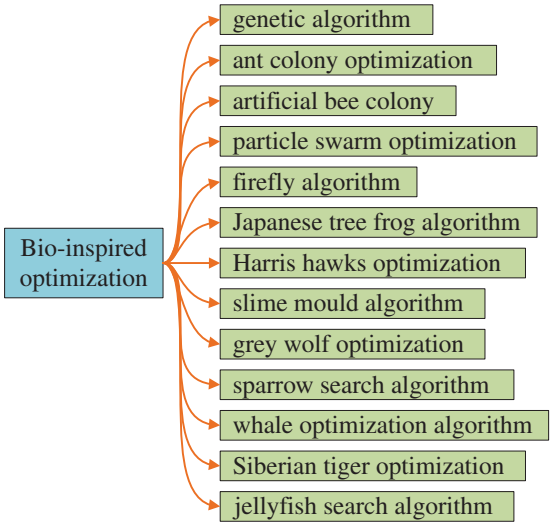

Figure 1: Taxonomy of common bio-inspired optimization algorithms

Bio-inspired optimization algorithms can be applied to engineering and sciences in several ways, such as data mining classification [10], biomarker extraction, food processing [11], image segmentation [12], renewable-powered smart grids [13], concurrent software [14], disease classification [15], lesion localization, treatment recommendation, power dispatch [16,17], mammogram diagnosis [18], rectangle layout problem [19], etc.

This special issue, bio-inspired optimization in engineering and sciences, is now calling for papers to the journal 'Computer Modeling in Engineering & Sciences'. The aim is to report the recent advances in bio-inspired optimization in Engineering and Sciences. The ultimate goal of this special issue is to promote research and development of bio-inspired optimization theories and their applications in engineering and sciences by publishing high-quality research articles and surveys in this rapidly growing interdisciplinary field.

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