عنوان مقاله:

Meta-Heuristic AlgorithmsA Comprehensive Review

محل انتشار:

اولین کنفرانس ملی پژوهش و نوآوری در هوش مصنوعی (سال: 1402)

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نویسندگان:

Mahdieh Zakizadeh - PhD, Department of Computer Engineering, South Tehran Branch, Islamic Azad University, Tehran, Iran

,Hossein Erfani - PhD, Department of Computer Engineering, South Tehran Branch, Islamic Azad University, Tehran, Iran

خلاصه مقاله:

Providing such a review requires in-depth study and knowledge of the advances and challenges in the broaderfield of meta-heuristics, especially with regard to diversification strategies, in order to assess the proposed methodsand provide insights for initialization. Motivated by the aforementioned research gap, we provide a related reviewand begin by describing the main meta-heuristic methods and their diversification mechanisms. Then, we reviewand analyze the existing initialization approaches while proposing a new categorization of them. Next, we focuson challenging optimization problems, namely constrained and discrete optimization. Lastly, we give insights onthe initialization of local search approaches. Conventional and classical optimization methods are not efficientenough to deal with complicated, NP-hard, high-dimensional, non-linear, and hybrid problems. In recent years, theapplication of meta-heuristic algorithms for such problems increased dramatically and it is widely used in variousfields. These algorithms, in contrast to exact optimization methods, find the solutions which are very close to theglobal optimum solution as possible, in such a way that this solution satisfies the threshold constraint with anacceptable level. Most of the meta-heuristic algorithms are inspired by natural phenomena. In this research, acomprehensive review on meta-heuristic algorithms is presented to introduce a large number of them (i.e. about۱۱۰ algorithms). Moreover, this research provides a brief explanation along with the source of their inspiration foreach algorithm. Also, these algorithms are categorized based on the type of algorithms (e.g. swarm-based,evolutionary, physics-based, and human-based), nature-inspired vs non-nature-inspired based, population-based vssingle-solution based. .Finally, we present a novel classification of meta-heuristic algorithms based on the countryof origin

کلمات کلیدی:

Meta-Heuristic Algorithms. Meta-Heuristic Optimization. Classification of Meta-Heuristic Algorithms.Evolutionary Algorithms. Swarm Algorithms