

عنوان مقاله:

Proposing a Novel Method for Optimal Location Finding Based on Machine Learning Algorithms and Gray Wolf Optimization

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خلاصه مقاله:

With the expansion of human activities, the volume of waste and hazardous waste produced has increased dramatically. Increasing the volume of waste has created challenges such as transportation hazards, cleanup, disposal, energy consumption, and most important environmental problems. The difficulty of unsafe waste control is one of the critical studies topics. Finding the optimal location of hazardous waste disposal is one of the issues that, if done properly, can significantly reduce the aforementioned challenges. The increasing volume of information, the complexity of multivariate decision criteria, have led to the lack of conventional methods for finding the optimal location. Machine learning methods have proven to be effective and superior in many areas. In this paper, a new method based on machine learning for finding the optimal location of hazardous waste disposal is presented. In the proposed method, after applying clustering in the separation of the desired areas, the gray wolf algorithm optimization is used to find the optimal location of waste disposal. In order to apply the gray wolf optimization algorithm, a multivariate target function is defined. Cluster centers as were chosen as location of waste disposal. Proposed method is performed on collected data from the study area in Iran, Tehran province. Proposed clustering method is evaluated and compared with some metaheuristics algorithm. The simulation results of the proposed method show cost reduction in finding the desired locations compared to similar researches. Also, Xi and Separation index was used for evaluation of the proposed clustering method to select the best location. The number of best locations using .Xi and Separation index claim the superiority of the proposed method

کلمات کلیدی:

waste disposal, Machine Learning, Clustering, Gray Wolf Optimization Algorithm, Objective function

لینک ثابت مقاله در پایگاه سیویلیکا:

