

عنوان مقاله:

GROUND MOTION CLUSTERING BY A HYBRID K-MEANS AND COLLIDING BODIES OPTIMIZATION

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خلاصه مقاله:

Stochastic nature of earthquake has raised a challenge for engineers to choose which record for their analyses. Clustering is offered as a solution for such a data mining problem to automatically distinguish between ground motion records based on similarities in the corresponding seismic attributes. The present work formulates an optimization problem to seek for the best clustering measures. In order to solve this problem, the well-known K-means algorithm and colliding bodies optimization are employed. The latter acts like a parameter-less meta-heuristic while the former provides strong intensification. Consequently, a hybrid algorithm is proposed by combining features of both the algorithms to enhance the search and avoid premature convergence. Numerical simulations show competitive performance of the proposed method in the treated example of optimal ground motion clustering; regarding global optimization and quality of final solutions.

کلمات کلیدی:

clustering, silhouette, K-means, colliding bodies optimization

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