

عنوان مقاله:

HYBRID COLLIDING BODIES OPTIMIZATION AND SINE COSINE ALGORITHM FOR OPTIMUM DESIGN OF STRUCTURES

محل انتشار:

مجله بهینه سازی در مهندسی عمران، دوره 13، شماره 1 (سال: 1401)

تعداد صفحات اصل مقاله: 22

نویسندگان:

M. Ilchi Ghazaan

A.H. Salmani Oshnari

A. M. Salmani Oshnari

خلاصه مقاله:

Colliding Bodies Optimization (CBO) is a population-based metaheuristic algorithm that complies physics laws of momentum and energy. Due to the stagnation susceptibility of CBO by premature convergence and falling into local optima, some meritorious methodologies based on Sine Cosine Algorithm and a mutation operator were considered to mitigate the shortcomings mentioned earlier. Sine Cosine Algorithm (SCA) is a stochastic optimization method that employs sine and cosine based mathematical models to update a randomly generated initial population. In this paper, we developed a new hybrid approach called hybrid CBO with SCA (HCBOSCA) to obtain reliable structural design optimization of discrete and continuous variable structures, where a memory was defined to intensify the convergence speed of the algorithm. Finally, three structural problems were studied and compared to some state of the art optimization methods. The experimental results confirmed the competence of the proposed algorithm.

کلمات کلیدی:

Colliding Bodies Optimization, Sine Cosine Algorithm, Structural Design, Discrete and Continuous Optimization, Metaheuristic Algorithms

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/1831617>

