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Title	A hybrid sperm swarm optimization and gravitational search algorithm (HSSOGSA) for global optimization
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Abstract	<p>This paper proposes a new hybrid optimization algorithm, called “(HSSOGSA)” with the combination of “gravitational search algorithm (GSA)” and “sperm swarm optimization (SSO)”. The underlying concepts and ideas behind the proposed algorithm are to combine the capability of exploitation in SSO with the capability of exploration in GSA to synthesize both algorithms’ strength. To evaluate the efficiency of the proposed approach, different test bed problems of optimization are considered, called the “congress on evolutionary computation (CEC)” 2017 suite. The proposed HSSOGSA is compared against both the standard GSA and SSO algorithms. These algorithms are compared based on two mechanisms, including, qualitative and quantitative tests. For the quantitative test, we adopt best fitness, standard deviation, and average measures, while for the qualitative test, we compare between the convergence rates achieved by the proposed algorithm and the convergence rates achieved by SSO and GSA. The outcomes of the study present the hybrid method possesses a better capability and performance to escape from local extremes with faster rate of convergence than the standard SSO and GSA for the majority of benchmarks functions of wide and narrow search space domain.</p>