A fast discrete gravitational search algorithm

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ABSTRACT
This study introduces a variant of Gravitational Search Algorithm (GSA) for discrete optimization problems, namely, Fast Discrete Gravitational Search Algorithm (FDGSA). The main difference between the proposed FDGSA and the existing Binary Gravitational Search Algorithm (BGSA) is that an agent's position is updated based on its direction and velocity. Both the direction and velocity determine the candidates of integer values for the position update of an agent and then the selection is done randomly. Unimodal test functions, such as De Jong's function, Scwefel's function and Rosenbrock's valley are used to evaluate the performance of the proposed FDGSA. Comparison with BGSA is done to benchmark the proposed FDGSA in terms of speed of convergence and quality of solution. The experimental result shows that the proposed FDGSA converges faster compared to the BGSA.

KEYWORDS:
GSA; discrete optimization; FGSA

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