A Dynamic Local and Global Conjoint Particle Swarm Optimization Algorithm

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Abstract

Particle swarm optimization (PSO) algorithm has been developed extensively and many results have been reported. PSO algorithm has shown some important advantage by providing high speed of convergence in specific problems, but it has a tendency to be trapped in a near optimal solution and difficult in improving the accuracy by fine tuning. This paper proposes a dynamic local and global conjoint particle swarm optimization (DLGCPSO and DCPSO in short) algorithm of which all particles dynamically share the best information of the local, global and the group particles. It is tested with a set of eight benchmark functions with different parameters in comparison to PSO. Experimental results indicate that the DCPSO algorithm improves the search performance on the benchmark functions significantly, and shows the effectiveness in solving optimization problems.

Keywords: Particle swarm optimization, Dynamic, Benchmark functions, Effectiveness, Optimization problems.