Evaluation of Vector Evaluated Particle Swarm Optimisation Enhanced with Non-dominated Solutions and Multiple Nondominated Leaders based on WFG Test Functions

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ABSTRACT
Multi Objective Optimisation (MOO) problem involves simultaneous minimization or maximization of many objective functions. One of MOO algorithms is Vector Evaluated Particle Swarm Optimization (VEPSO) algorithm. In VEPSO, each objective function is optimised by a swarm of particles under guidance of the best solution, known as leader, from another swarm. Recently, an improved VEPSO algorithm, namely VEPSO incorporated non-dominated solution (VEPSOnds), has been introduced by the use of nondominated solution as leader. Then, the VEPSOnds algorithm is further modified with multi leaders, namely VEPSO with multi leaders (VEPSOml). The improved VEPSO algorithms have been subjected to a series of numerical experiments based on ZDT benchmark datasets. In this study, a more complex benchmark datasets called WFG, is considered for the evaluation of VEPSO, VEPSOnds, and VEPSOml algorithms.

KEYWORDS: multi objective optimization; particle swarm optimization; vector evaluated; WFG, ZDT

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