Strategic Particle Swarm Optimization with Predators

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SUMMARY

Particle Swarm Optimization (PSO) [1][2] is known as one of Swarm Intelligence (SI) [3][4]. Other SI algorithms are well known Ant Colony Optimization [5][6] and Bee Colony Optimization [7]. PSO algorithm refer to the system of fish school, bird flock and so on. PSO algorithm is possible to find a solution easily, so it can be applied for many applications. However, the standard PSO is hard to escape out from local minimum.

Accordingly, in this report, we propose strategic PSO with Predators (PSO-P). PSO-P algorithm is specific fish school (particles) algorithm to which big fish (predator) is added. The particles are eaten by the predators or the particles escape from the predators. We compare the proposed PSO-P and the standard PSO by using computer simulation.

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