Particle Swarm Optimization as

a General-Purpose Optimization Tool

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Abstract

Particle swarm optimization (PSO) is a nature-inspired metaheuristic algorithm and is increasingly used to find various types of optimal designs for more complex models. We review some recent ones and discuss applications of PSO to solve other statistical problems. PSO is created NOT to specifically find optimal experimental designs. It is a general-purpose optimization algorithm requiring virtually no assumption for it to work reasonably well. I describe strategies on how to enhance a metaheuristic search and present selected applications of PSO to tackle real challenging optimization problems in other disciplines like public health, epidemiology and in medical diagnosis and diagnostics.