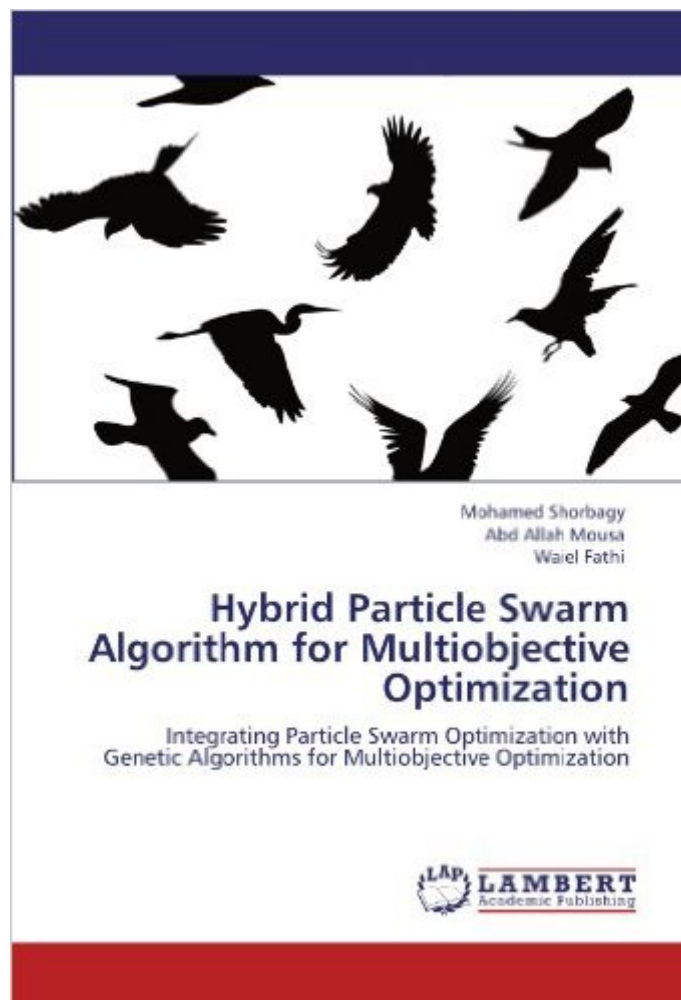


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Hybrid Particle Swarm Algorithm For Multiobjective Optimization: Integrating Particle Swarm Optimization With Genetic Algorithms For Multiobjective Optimization





Synopsis

In this book we attempt to apply artificial intelligence techniques in solving engineering problems for the sustainable advantages of these methods. We had provide a hybrid algorithm that combines both of the Genetic Algorithm and Particle Swarm Optimization to solve the problems of optimization with a nonlinear single objective. In addition, the hybrid approach which has been introduced to solve the problems of a single objective, was developed to the possibility of applying it to solve the problems of multiple objectives in order to obtain nondominated solution. Also, to improve these solution a Local Search Technique has been introduced and added to the Hybrid Algorithm to possibly obtain more nondominated solutions nearby. We confirmed the accuracy of the solution both at the level of optimization problems with a single objective or multiple objectives and thus the possibility of applying it to solve some engineering problems. So the proposed approach has been applied to solve a problem of the most important in the operation of electric power system (multiobjective Reactive power compensation).

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