Abstract

Real world problems in engineering domain are typically constraint optimization problems. An Adaptive Quantum Evolutionary Algorithm for solving such problems is proposed in this paper. The proposed technique uses a novel qubits representation for search and optimization and uses feasibility rules for handling constraints. Moreover, it does not need stochastic ranking or niching or other methods for maintaining diversity. It does not even require mutation and local heuristics. The algorithm is tested on a standard set of four widely studied benchmark engineering design optimization problems. The results obtained are better than the existing state of the art approaches. The proposed algorithm is simple in concept and implementation, while being robust.

Reference
An Adaptive Quantum Evolutionary Algorithm for Engineering Optimization Problems


Index Terms

Electrical & Instrumentation

Numerical Analysis

Key words

Quantum

Evolutionary Algorithm

Engineering Optimization

Constraint Handling