

1*An Intelligent Interactive Approach Based Entropy Weights to Solve Multi-Objective Problems with Fuzzy Preferences

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Abstract:

The integration between Multi-Objective Optimization (MOO) approaches and Artificial Intelligent (AI) represents the rich area of research since last decade. This paper presents a contribution in this area by suggesting an interactive approach to determine the preferred compromise solution for the multi-objective optimization problems in the presence of fuzzy preferences. In this approach the decision maker (DM) evaluates the solution by using a defined set of linguistic variables and consequently the achievement fuzzy membership (FM) function can be constructed for each objective function. The approach focuses on calculating the weight for each objective function based on determining the degree of entropy of each objective function to transform the main MOO problem into single objective function problem. In addition, the proposed approach can be applied to solve other linear and nonlinear multi-objective decision making problems. The performance of the solution approach is verified by solving a set of documented problems.

2*Fuzzy Adaptive Particle Swarm for Single and Multi-Objective Optimization Problems

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Abstract:

This paper proposed a fuzzy adaptive particle swarm optimization (FAPSO) for single and multi-objective optimization problems (MOOPs). This algorithm considers the development a combination of particle swarm optimization with fuzzy set theory to solve the complexities of non linear programming with high dimensions. This combination achieved in this algorithm two objectives. One of them determines the initial position of particles instead of selecting them randomly and ranking them by using the fuzzy utility function. Therefore, it is easy to select the and for MOOP. Another one is controlling the velocity of the particles whereas it is the reason to reveal the premature convergence and the particles divergence cases. The FAPSO is tested using a set of benchmark problems to illustrate the effectiveness of overcoming the premature convergence and the particles divergence cases. Also, for finding the multiple pareto optimal solution of MOOPs. best p best g

Keywords Particle swarm optimization; Fuzzycontrol parameters; Fuzzy preferences; Multi-objective .

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*3*Solving fuzzy Bi-level Problems Using Modified Particle Swarm Optimization Algorithms*

Abstract:

This paper suggests a modified particle swarm optimization MPSO for solving fuzzy bi-level single and multi-objective problems.

*4*Quantum Crossover Based Quantum Genetic Algorithm for solving Non-linear programming*

Abstract:

This paper proposes a quantum crossover-based quantum genetic algorithm (QXQGA) for solving non-linear programming. Due to the significant role of mutation function on the QXQGA's quality, a number of quantum crossover and quantum mutation operators are presented for improving the capabilities of searching.

5 Fuzzy Adaptive particle Swarm Optimization for Probabilistic $\langle Q_m, N \rangle$ Inventory Model with Varying Mixture Shortage under Restrictions*

Abstract:

This paper proposed the probabilistic periodic review $\langle Q_m, N \rangle$ inventory model with mixture shortage (backorder and lost sales) using Lagrange multiplier technique and fuzzy adaptive particle swarm optimization (FAPSO) under restrictions.