Abstract

Selection is one of the key operations of genetic algorithm (GA). This paper presents a comparative analysis of GA performance in solving multi-objective network design problem (MONDP) using different parent selection methods. Three problem instances were tested and results show that on the average tournament selection is the most effective and most efficient for 10-node network design problem, while Ranking & Scaling is the least effective and least efficient. For 21-node and 36-node network problems, Roulette Wheel is the least effective but most efficient while Ranking & Scaling equals and outperformed tournament in effectiveness and efficiency respectively.

References

- Julstrom, B. A. 1999. It's All the Same to Me: Revisiting Rank-Based Probabilities and Tournaments, Department of Computer Science, St. Cloud State University.

Index Terms

Computer Science  Algorithms

Keywords

Genetic Algorithm  Selection Methods  Network Design Problem  Performance