

MULTIOBJECTIVE ASSIGNMENT PROBLEM IN TELECOMMUNICATION NETWORK

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Abstract: This presentation introduces a computational approach to address multi-objective problems in the telecommunications network field, as proposed by an Algerian industrial company. Our primary objective is to develop a temporary solution to address issues within the existing management system. Accordingly, we have established a mathematical operational model. Exact algorithms for solving multi-objective optimization problems may not be suitable for large-scale problems. Nevertheless, the application of a metaheuristic approach is well-suited to approximate the Pareto optimal set. In this presentation, we employ a widely recognized multi-objective evolutionary algorithm, the Non-dominated Sorting Genetic Algorithm (NSGA-II). We compare the results obtained with those generated by the Strength Pareto Evolutionary Algorithm-II (SPEA2) and suggest a method to assist decision-makers, often faced with the challenge of selecting a final solution. This involves using a utility function based on a Choquet integral measure to express their preferences. Finally, numerical experiments are presented to validate our approach.

References

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