

Task Assignment Optimization for the Batch Casualty Surgeries in Emergencies based on Extended Genetic Algorithm

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Abstract

The task assignment optimization problem of the casualties' surgeries in emergency events was considered, and a generalized task assignment model was built. In view of the NP-hard of this problem, an extended genetic algorithm with repair operation was presented. Concerning the characteristics of the problem, the selection operation, crossover operation and mutation operation in the proposed algorithm were designed. For improving the algorithm's convergence, a special repair operation was employed to revise unfeasible solutions in evolutionary process. Further, the experiments showed that the proposed algorithm is feasible and effective.

Keywords: Task assignment, batch casualty surgery, emergency medical resources, genetic algorithm.