

Route Optimization for E-Commerce Logistics Systems

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Abstract: *This paper aims to solve the last-mile distribution of rural e-commerce logistics (RECL) for the survival of third-party logistics enterprise. Considering the features of the RECL (long transport chain and low consumption density), A route optimization model is constructed for RECL's last-mile distribution to maximize the profit of the logistics enterprise, which is subsidized by the government. To solve the model, the ant colony optimization (ACO) was improved to suit the RECL's last-mile distribution by modifying the heuristic information, the update rule of pheromone, and the solution construction. Next, the optimal combinations of the default parameters in the improved ACO were determined through Matlab tests on test datasets in different sizes. The other parameters were configured according to the scale of the RECL. On this basis, the improved ACO was proved effective through example analysis on the said test datasets. The analysis results also react how the number of vehicles affects the maximum profit of the logistics enterprise and the coverage of the RECL logistics network.*

Keywords: Route Optimization, Ant Colony Optimization, Dijkstra Algorithm and Machine Learning

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