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Hybrid discrete particle swarm optimization algorithm for capacitated vehicle routing problem. (English) [Zbl 1166.90319](#)

J. Zhejiang Univ., Sci. A 7, No. 4, 607-614 (2006).

Summary: Capacitated vehicle routing problem (CVRP) is an NP-hard problem. For large-scale problems, it is quite difficult to achieve an optimal solution with traditional optimization methods due to the high computational complexity. A new hybrid approximation algorithm is developed in this work to solve the problem. In the hybrid algorithm, discrete particle swarm optimization (DPSO) combines global search and local search to search for the optimal results and simulated annealing (SA) uses certain probability to avoid being trapped in a local optimum. The computational study showed that the proposed algorithm is a feasible and effective approach for capacitated vehicle routing problem, especially for large scale problems.

MSC:

[90B20](#) Traffic problems in operations research

[90C10](#) Integer programming

Cited in **13** Documents

Keywords:

capacitated routing problem; discrete particle swarm optimization (DPSO); simulated annealing (SA)

Software:

[VRP](#)

Full Text: [DOI](#)

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