

**ADAPTIVE GENETIC ALGORITHM BASED HEURISTIC ALGORITHMS FOR A
CAPACITATED VEHICLE ROUTING PROBLEM WITH SINGLE DEPOT**

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ABSTRACT:

Most engineering optimization algorithms are based on numerical linear and nonlinear programming methods that require substantial gradient information and usually seek to improve the solution in the neighborhood of a starting point. These algorithms, however, reveal a limited approach to complicated real-world optimization problems. If there is more than one local optimum in the problem, the result may depend on the selection of an initial point, and the obtained optimal solution may not necessarily be the global optimum. This paper presents an adaptive genetic algorithm (GA) based heuristic algorithms to solve the Capacitated Vehicle Routing Problem to near optimal solutions. This transportation algorithm is especially meant for single source (or depot), multiple delivery points and constant maximum load carrying capacity. Cost involves both fixed (truck cost) and variable cost type (cost as a function of distance).

Keywords: Genetic Algorithm, Combinatorial Optimization Problem, Vehicle Routing Problem