

## Latin hypercube sampling Jaya algorithm based strategy for T-way test suite generation

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### ABSTRACT

T-way testing is a sampling strategy that generates a subset of test cases from a pool of possible tests. Many t-way testing strategies appear in the literature to-date ranging from general computational ones to meta-heuristic based. Owing to its performance, many meta-heuristic based t-way strategies have gained significant attention recently (e.g. Particle Swarm Optimization, Genetic Algorithm, Ant Colony Algorithm, Harmony Search, Jaya Algorithm and Cuckoo Search). Jaya Algorithm (JA) is a new metaheuristic algorithm, has been used for solving different problems. However, losing the search's diversity is a common issue in the metaheuristic algorithm. In order to enhance JA's diversity, enhanced Jaya Algorithm strategy called Latin Hypercube Sampling Jaya Algorithm (LHS-JA) for Test Suite Generation is proposed. Latin Hypercube Sampling (LHS) is a sampling approach that can be used efficiently to improve search diversity. To evaluate the efficiency of LHS-JA, LHS-JA is compared against existing metaheuristic-based t-way strategies. Experimental results have shown promising results as LHS-JA can compete with existing t-way strategies.

### KEYWORDS

Application of Jaya algorithm; Jaya algorithm; Metaheuristic algorithm; Optimization algorithm; T-way test suite generation

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