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A Tabu Search hyper-heuristic strategy for *t-way* test suite generation

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ABSTRACT

This paper proposes a novel hybrid *t-way* test generation strategy (where *t* indicates interaction strength), called High Level Hyper-Heuristic (HHH). HHH adopts Tabu Search as its high level meta-heuristic and leverages on the strength of four low level meta-heuristics, comprising of Teaching Learning based Optimization, Global Neighborhood Algorithm, Particle Swarm Optimization, and Cuckoo Search Algorithm. HHH is able to capitalize on the strengths and limit the deficiencies of each individual algorithm in a collective and synergistic manner. Unlike existing hyper-heuristics, HHH relies on three defined operators, based on improvement, intensification and diversification, to adaptively select the most suitable meta-heuristic at any particular time. Our results are promising as HHH manages to outperform existing *t-way* strategies on many of the benchmarks.

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