A Signal Timing Optimization in Traffic Management using ABC Algorithm

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Abstract

The ABC algorithm is a new population-based meta-heuristic approach, and it is inspired by the foraging behaviour of honeybee swarm. This study discusses Artificial Bee Colony (ABC) algorithm for finding optimal setting of traffic signals in coordinated signalized networks for given fixed set of link flows. For optimizing traffic signal timings in coordinated signalized networks, ABC with GA (ABCGA) model is developed and tested. A standard traffic model is used to estimate total network performance index (PI). The ABCGA is tested in various levels with signalized road network. Results showed that the proposed model is slightly better in signal timing optimization in terms of final values of PI when it is compared with Fixed time model, and evolutionary algorithm (EA) based model. Results also showed that the ABCGA model improves network’s PI when it is compared with Fixed time and EA methods.

References

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survey: artificial bee colony (ABC) algorithm and applications”. 2012.

Index Terms

Computer Science  Artificial Intelligence
Keywords

Artificial Bee Colony, Genetic Algorithm, signal timings, optimization.