

## Harmony Search-Based K-Coverage Enhancement in Wireless Sensor Networks

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**Abstract :** Many wireless sensor network applications require K-coverage of the monitored area. In this paper, we propose a scalable harmony search based algorithm in terms of execution time, K-Coverage Enhancement Algorithm (KCEA), it attempts to enhance initial coverage, and achieve the required K-coverage degree for a specific application efficiently. Simulation results show that the proposed algorithm achieves coverage improvement of 5.34% compared to K-Coverage Rate Deployment (K-CRD), which achieves 1.31% when deploying one additional sensor. Moreover, the proposed algorithm is more time efficient.

**Keywords :** Wireless Sensor Networks (WSN), harmony search algorithms, K-Coverage, Mobile WSN

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