

# An Evolutionary Approach for Multi-objective 3D Differentiated Sensor Network Deployment

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## Abstract

This paper describes a multi-objective evolutionary approach for solving multi-objective 3D deployment problems in differentiated wireless sensor networks (WSNs). WSN is a wireless network consisting of spatially distributed autonomous sensors to monitor physical or environmental conditions. Deciding the location of sensor to be deployed on a terrain with the consideration of different criteria is an important issue for the design of wireless sensor network. A multi-objective genetic algorithm is proposed to solve 3D differentiated WSN deployment problems with the objectives of the coverage of sensors, satisfaction of detection levels, and energy conservation. The preliminary experimental results demonstrated that the proposed approach is suitable for solving 3D deployment problems of WSNs with different requirements.

Keyword : Wireless sensor network, multi-objective optimization, genetic algorithms