

Coverage and Detection in Wireless Sensor Networks

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Abstract

Recent developments in WSN have raised a demand for energy-efficient algorithms for coverage and intrusion detection. This talk presents a model for intrusion detection in WSN which optimizes network coverage and detection while minimizing the number of sensors and energy consumption. Since newer sensor nodes have the ability to relocate once they are deployed, it is of interest to study efficient patrolling strategies and intrusion detection in the context of mobility.

A critical part of this study consists in maximizing the lifetime of the network under Quality of Service constraints.

The model considers realistic environments such as a battle field or civil monitoring and takes into account realistic constraints such as the limited computational power, battery life and number of sensor nodes.

This detection model provides researchers and practitioners with insights on how to build an effective sensor network to detect intruders with a small number of active sensors and can be used to create a working network that accurately matches the stringent conditions of military surveillance.