

无线视频传感器网络有向感知K覆盖控制算法研究

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基金项目：基于机会网络编码的无线传感网MDC视频多径优化调度研究，基于多尺度时空相关性的无线传感网自适应优化采样技术研究

摘要：

作为无线视频传感器网络的一个研究热点，有向覆盖控制理论引起了很多研究学者的广泛关注，但是有向K覆盖问题还未得到深入研究。由于最大K有向覆盖属于NP-complete问题，难以在多项式时间内得到求解，因此本文设计了一种简单的分布式启发式算法，在一跳邻居范围内对传感器节点的感知方向进行协同调度，使得目标集合被有向K覆盖的时间最多。最后通过仿真比较了有向感知K覆盖DS-K-Coverage算法、贪婪算法Greedy-Algorithm、随机覆盖算法Random-Coverage的覆盖性能。

关键词：无线传感器网络；视频传感器网络；有向感知；K覆盖控制算法

Research on Directional K-Coverage Control Algorithm for Wireless Video Sensor Networks

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Abstract:

As a hot topic of Wireless Video Sensor Networks (WVSNs), directional coverage algorithms have aroused extensive attention by many researchers; however, K directional coverage problem has not been studied in-depth. Due the K directional coverage problem is NP-complete problem, it is difficult to get to solve in polynomial time. In this paper, we designed a distributed heuristic algorithm within one-hop neighbor, which obtains perceived direction of the directional sensor nodes by cooperative scheduling so as to maximize the total time which targets are covered by at least K directional sensor nodes. Finally, the simulation results verified the coverage performance of the proposed DS-K-Coverage algorithm exceeding Greedy-Algorithm and Random-Coverage algorithm.

Keywords: Wireless sensor networks; Video sensor networks; Directional sensing; K-Coverage algorithm

投稿时间：2013-02-04