

一种基于模拟退火算法的无线传感器网络最优簇类求解方案

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摘要:

通过对现有分簇算法的深入研究, 从典型的组合优化问题着手, 利用模拟退火算法的思想, 提出了一种基于模拟退火算法的无线传感器网络最优簇类求解方案, 首先将簇头节点集合抽象为参考模型, 通过一定的扰动因子不断迭代更新最终得到目标簇头集, 然后将模拟退火算法的整个思想充分结合到最佳簇数的选择过程中, 详细介绍了整个过程的实现, 并通过数学建模分析和仿真实验相结合的方法对所给出方案中的最佳簇数、每轮持续时间、算法迭代次数等相关参数进行了研究和分析。

关键词: 无线传感器网络; 分簇; 模拟退火算法; 最佳簇数

A best clustering scheme based on simulated annealing algorithm in wireless Sensor networks

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Abstract:

Through the thorough study of existing clustering algorithms, begin with the problem of typical combinatorial optimization and using the idea of simulated annealing algorithm, this paper proposes a best clustering scheme of the wireless sensor network based on simulated annealing algorithm. At first, this essay assembly abstracts the cluster head nodes to referenced model, and obtains objective cluster head collection through certain perturbation factors continuous iteration in the end; then, fully combines the idea of simulated annealing algorithm to the choosing process of the best number of clusters, this paper introduces the realization of the whole process in detail. The best number of clusters, persistent time, iterative times are studied and analysed through mathematics model and simulated experiments.

Keywords: wireless sensor network; clustering; simulated annealing algorithm; The best number of clusters

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