



### 基于移动Agent的JPEG2000分布式编码算法研究

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## Research on Distributed JPEG2000 Coding Algorithm Based on Mobile Agent

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摘要

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**摘要** 该文针对无线传感器网络节点处理能力、存储能力和能量供应均有限的特点,提出一种基于移动Agent的JPEG2000分布式编码算法。采用多个节点对图像进行分布式编码,通过引入移动Agent机制来实现网络节点间的信息交互,在保证图像编码性能不变的情况下,降低单个节点能耗,使系统不因单个节点能量耗尽而瘫痪,以延长系统的生命周期。仿真实验结果表明,该文所提出的基于移动Agent的分布式编码算法在无线传感器网络环境中可以保证编码后的图像质量没有下降,并能有效均衡系统能耗、延长网络工作寿命达3倍左右。

**关键词:** 无线传感器网络 JPEG2000 分布式编码 压缩后率失真优化算法 移动Agent

**Abstract:** For the limited processing, storage and energy of network nodes in the wireless sensor network environment, a distributed JPEG2000 coding algorithm based on mobile agent is proposed. Multiple network nodes are utilized to the image distributed coding and mobile Agent mechanism is used to communicate among network nodes. The energy consumption of single node is reduced under the invariant coding performance of the image, thus prevents the system from paralysis caused by the energy depletion of single node and prolongs the life cycle of the system. Simulation results show that the proposed algorithm is better communication capability of network nodes while the quality of the image is invariant after the coding, and can achieve a good balance of the network energy consumption and prolong the network life cycle 3 times as before.

**Keywords:** Wireless Sensor Network (WSN) JPEG2000 Distributed coding Post-Compression Rate-Distortion Optimazation (PCRDO) algorithm Mobile Agent

Received 2009-10-15;

本文基金:

国家自然科学基金(60772069), 国家863计划项目(2008AA01A313, 2009AA12Z111)和北京工业大学研究生科技基金(ykj-2009-2801)资助课题

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引用本文:

刘志兴, 张菁, 卓力.基于移动Agent的JPEG2000分布式编码算法研究[J] 电子与信息学报, 2010,V32(9): 2236-2240

Liu Zhi-Xing, Zhang Jing, Zhuo Li.Research on Distributed JPEG2000 Coding Algorithm Based on Mobile Agent[J] , 2010,V32(9): 2236-2240

链接本文:

http://jeit.ie.ac.cn/CN/10.3724/SP.J.1146.2009.01326 或 http://jeit.ie.ac.cn/CN/Y2010/V32/I9/2236

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