

机器学习与数据挖掘

基于迭代译码算法的分级分布式视频编码

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摘要:

分布式视频编码(distributed video coding, DVC)是一种新的视频编码算法,与传统视频编码系统相比,具有低编码复杂度和高鲁棒性的优点。但它的压缩率比较低,对画面组(group of picture, GOP)的长度依赖性比较大。将H.264解码算法引入像素域视频编码系统(pixel domain Wyner Ziv codec, PDWZ)中,提出了一种混合视频编码框架。系统采用了并行编码和迭代解码结构,同时引入了预测编码和一种新的边信息生成算法。仿真结果表明,提出的结构比最优的PDWZ有更高的压缩效率。同时它使视频能顺序编解码,并提供了多层的可分级性。

关键词: 画面组(GOP); 迭代译码; 预测编码; 可分级视频编码 WZ视频编码技术

An iterative decoding based scalable distributed video coding

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Abstract:

As a new video coding paradigm, distributed video coding (DVC) has lower encoding complexity and higher robustness to transmission error than conventional video coding. However, its compression ratio was comparatively low and highly dependent on group of pictures (GOP) size. A combined video coding scheme was proposed by introducing H.264 coding into typical pixel domain Wyner Ziv (PDWZ) coding. The coder has a parallel encoding and iterative decoding structure, in which a predictive coding scheme and a novel side information (SI) generation algorithm are also adopted. Simulation showed that the proposed architecture has higher compression ratio than an optimized PDWZ coder. Moreover, it enables a video to be processed in sequential order and provides multilayer in scalability.

Keywords: group of picture(GOP) iterative decoding predictive coding scalable video coding Wyner Ziv codec

收稿日期 2010-12-01 修回日期 网络版发布日期

DOI:

基金项目:

四川大学青年科学基金资助项目(校青2008005); 欧盟FP7-PEOPLE-IRSES资助项目(247083)

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