

博士论坛

细粒度可伸缩小波视频编码研究

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摘要 针对不可控网络下的视频应用, 提出一套新的小波视频编码方案, 适用于根据每个用户实时网络状况进行动态码率传输和控制, 目的是为用户在不稳定的带宽下提供持续清晰流畅的全局最优的视频体验。该编码方案简化了W5/3提升小波, 在MCTF算法中引入层次化多参考帧预测, 并采用新提出的基于优先级的传输层流打包方法以及基于块位长的嵌入式零块编码算法。经过测试表明, 提出的算法压缩效率高, 质量可伸缩性好, 能够有效提升用户体验。

关键词 [小波视频编码](#) [动态码率](#) [媒体传输](#) [媒体控制](#)

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Research on fine granularity scalable wavelet video coding

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Abstract

For the video application in the uncontrollable network, a new wavelet video coding scheme is proposed. It is suitable for the application of dynamic bit rate transmission and control according to each user's real-time network bandwidth. Its aim is to provide a sustained, clear and fluent experience for video audiences with general optimization in the unstable network. In the wavelet video coding scheme, the W5/3 lift wavelet algorithm is simplified and the hierarchical multi-reference-frame prediction method is introduced into MCTF, the transmission layer stream packing method is adopted according to the data priority, the wavelet embedded block coding method is used based on bit-length search. The test shows that the algorithm proposed in this paper has high compression efficiency and fine scalability in quality and can achieve higher user experience.

Key words [wavelet video coding](#) [dynamic bit rate](#) [media transmission](#) [media control](#)

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