基于自适应块尺寸的H.264时域错误隐藏算法

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摘要　　为提高在视频通信中重建图像质量，充分利用运动矢量的空间相关性、相邻宏块的编码模式信息，提出了一种新的H.264时域错误隐藏算法。该算法根据误码块周围的邻块模式，自适应决定隐藏块的尺寸；对于每个尺寸块，都从多个候选运动矢量集合中选取使外边界对应像素差值最小的运动矢量；并利用运动估计技术更精确地恢复丢失宏块的运动矢量，从而提高所恢复视频信号的质量。实验结果表明：对于不同运动类型序列和不同宏块丢失率，该算法不仅计算量较小，而且恢复后的图像质量均优于传统的时域错误隐藏算法。

Robust temporal error concealment for H.264 with adaptive block sizes

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Abstract

To improve the decoded quality of videos when bit stream data incur transmission errors, an effective temporal error concealment algorithm is proposed for H.264 coded video. It uses not only motion vectors and reference frames but the modes of macroblocks adjacent to the lost macroblock as well. Each lost macroblock is concealed on the basis of different block sizes depending on the modes of neighboring macroblocks. Then the motion vector with the minimum value of external boundary match distortion is selected for each block from a list of motion vector candidates. Finally, motion estimation is employed to more accurately recover the lost motion vectors and improve the video quality. For video sequences with different motions and various lost rates of inter-coded macroblocks, experimental results show the proposed technique can obtain a better video quality than conventional temporal concealment techniques and the computational complexity is very low.