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基于运动特征的HEVC 快速帧间预测算法

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Fast Inter-Frame Prediction Algorithm for HEVC Based on Motion Features

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摘要 高效视频编码(high efficiency video coding, HEVC) 帧间预测方法相比于其他视频编码标准具有更高的编码效率, 但同时也带来了更高的编码复杂度. 为了加速HEVC 帧间预测过程, 提出了一种快速帧间预测算法. 该算法首先判断当前编码单元(coding unit, CU) 的运动特征, 然后根据不同的运动特征采取不同的优化措施以减少帧间预测时间. 基于HEVC 校验模型(HM6.0) 的实验结果表明, 该算法在基本保持传统算法性能的基础上, 编码时间平均可减少53.33%.

关键词: 高效视频编码 帧间预测 运动特征 快速算法

Abstract: Compared with other video coding standards, the inter-frame prediction of HEVC provides higher coding efficiency, leading to higher coding complexity however. This paper presents a new inter-frame prediction algorithm for HEVC to speed up the process. The method is based on motion features of coding unit (CU). It takes different optimization measures according to different motion features to reduce the inter-frame prediction time. Experiments on HM6.0 show that the proposed algorithm can reduce encoding time by about 53.33% for the same performance of the original algorithm.

Keywords: high efficiency video coding (HEVC), inter-frame prediction, motion features, fast algorithm

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