Intra Prediction Mode Decision for H.264

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Abstract

Digital video compression has become an integral part of the way we create, consume visual information and communicate, over the last few decades. A robust technique of compression is proposed in this paper for video compression. Reduction of irrelevant or redundant data in order to save the storage space requirements and processing time is nothing but compression. Here H.264/AVC (Advance Video Coding) video coding standard is used for compression. Where I-frames are divided into different macro blocks (MB) and each MB is efficiently compressed using 4 x4 and 16 x16 blocks in H.264/AVC intra prediction. Choosing one of 9 prediction modes for each 4 x4 block with reduced time and less complexity is still a bottleneck. In this paper a gradient based fast intra prediction mode selection method for 4x4 and 16x16 is proposed. The proposed method divides an input frames into variable block sizes based on the texture and performs few mode examinations based on the gradient direction in the given slice. Respective best mode with minimum cost is selected using sum of absolute difference (SAD) and rate distortion optimization (RDO). This process is carried for all the video input frames. Each compressed video frames are combined finally to get a compressed video output.
References


Index Terms

Computer Science  
Signal Processing

Keywords

Advanced Video Coding (AVC), compression, H.264, SAD, RDO, MB and Gradient method.