

FAST INTER/INTRA MODE DECISION IN H. 264 BY MOTION VECTOR PREDICTION

鄭芳炫, 林宣德

Computer Science & Information Engineering

Computer Science and Informatics

fhcheng@chu.edu.tw

Abstract

In past motion vector estimation, constant 16*16 block size is usually used for prediction. Due to different characteristics of video sequences, fixed block size is not adequate to predict motion vector accurately. H.264/AVC proposes the mode of variable block size to increase accuracy of motion vector prediction according to the characteristics of video sequences. However, complexity is relatively high because each mode must be judged. In order to decrease complexity and greatly enhance compression efficiency of H.264/AVC, a fast inter/intra mode decision algorithm in H.264 by motion vector prediction is proposed in this paper. We make analysis toward motion vector and sequence characteristics in seven sequences. Under experimental environment of JM12.2 version, totally 700 frames are used in seven sequences. Experimental result shows that inter prediction could save 71% of time with image quality decreasing about 0.05db and bit rate increasing about 0.15, all of which are superior than methods proposed in other relevant paper with stable image quality and bit rate. However, even though intra prediction saves 76% of time, quality still decreases 0.02db and bit rate increases about 5.5. How to correct this higher bit rate should be considered in improvement issue in future.

Keyword : Variable block size, Mode decision, Motion vector prediction, Sobel method, Filter method