FAST MOTION ESTIMATION WITH DETECTION OF SCENE CHANGES AND INTERLACED/PROGRESSIVE CONTENT FOR H.264/AVC ENCODING

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Abstract

The novel H.264/AVC video coding standard introduces many improvements in inter-frame motion compensated prediction, although significantly increasing the computational complexity of the motion estimation process. In this paper, we propose a fast-block based predictive-recursive motion estimation algorithm, which applies two consecutive search steps, achieving same image quality of the classical Full-Search Block Matching by using only 3% of the computation. Furthermore, the output of the first search step can be used for efficient-on-the-fly detection of scene changes in the video sequence, and interlaced or progressive coding decision for each picture.

Keywords: H.264/AVC, motion estimation, Scene change detection, Interlaced/progressive detection