TWO−PASS RATE CONTROL FOR CONSTANT QUALITY H.264/AVC HIGH DEFINITION VIDEO CODING

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Abstract : In this paper, we propose a novel rate control algorithm that adopts two−pass encoding to provide constant quality for H.264/AVC high definition videos. In the first−pass encoding, the rate and distortion information of each frame is collected to model the frame scene complexity. In the second−pass encoding, a GOP−level bit allocation scheme is designed to determine the bit rate and the expected constant distortion of each frame based on the first−pass statistics. The quantization step (Q−step) of each frame can be resolved according to the relationship between distortion and Q−step. The experimental results show that our proposed algorithm can achieve more constant quality through the whole sequence, compared to traditional Joint Model (JM) rate control algorithm.