

THE HIGH ACCURACY VIDEO WATERMARKING ON H.264 BY MAJORITY

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ABSTRACT. *In this paper, we use video watermarking that based on H.264 video compression to protect video data. In recent years, H.264 is a new advanced video compression standard; it provides higher compression efficiency and better video quality than the traditional one. Today, it is very convenient for information transmission. However, the digital information would be altered easily. Therefore, to prevent the data being used illegally is a very important issue today. In this paper, the watermarking approach is via comparing several corresponding AC coefficients to embed watermark information into I Frame. On the other hand, extracting watermark via comparing corresponding AC coefficients vice versa. Both of embedding and extracting are via modifying the majority of AC coefficients in accordance with watermark information bit. Additionally, these results show that the extracting watermark possesses high accuracy. Furthermore, the watermark information is able to resist the impact of video compression effectively.*

Keywords: H.264, Video watermarking, Majority

1. Introduction. A new H.264 video compression standard was developed as a new-generation with the great vision of increasing coding efficiency, upgrading video quality. This mechanism is widely used in different bit rate, definition, and applied in a variety of broadcast networks and systems. These achievements proved the H.264 to be one of the best third-generation mobile communication standards of many organizations, and further more, selecting H.264 as the third-generation mobile communication network is the current trend.

This study applies H.264 video compression combination of video watermark technique. The authors embedded the watermark information during the H.264 compression processes. Both goals of data compression and data protection were achieved simultaneously. This technique also provides the function of enduring the impact of video compression.

2. Related Work. The methods of watermarking which are suitable for video compression can be broadly categorized into two types:

(1) **The watermark embedded in the quantized coefficients of intra-frames.** Y.-T. Lin [13] proposed to embed the quantized watermark into the 4×4 blocks of Intra Frames. Firstly, a Block Sub-band Index for each 4×4 Block was made, and then, the watermark was embedded by Block Sub-band Index via Coefficient Modulation.