

Lossless Watermarking of Compressed Media

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Project Summary:

In this research we implement watermarking, not in raw or partially decompressed domain but directly in the compressed bitstream of JPEG and MPEG files. With no need to do either full or even partial decompression, the algorithm is fast and real time. The basic idea proposed pursued is that watermarking of variable length codes(VLC) of the entropy coded portion of compressed media is essentially equivalent to controlled channel errors. In fact, convergence of channel coding and watermarking is a very recent phenomenon in the literature. More often, however, researchers have used watermarking to control channel errors. We are doing the opposite here. Watermark is embedded as a *forced* bit error and is placed at time and place of our choosing. Watermarking of a VLC then maps the codeword to the outside of legal codespace. This property helps decoder identify watermarked VLC. The algorithm is invertible and file-size preserving.