

## Digital Cinema Watermarking State of Art and Comparison

**Authors :** H. Kelkoul, Y. Zaz

**Abstract :** Nowadays, the vigorous popularity of video processing techniques has resulted in an explosive growth of multimedia data illegal use. So, watermarking security has received much more attention. The purpose of this paper is to explore some watermarking techniques in order to observe their specificities and select the finest methods to apply in digital cinema domain against movie piracy by creating an invisible watermark that includes the date, time and the place where the hacking was done. We have studied three principal watermarking techniques in the frequency domain: Spread spectrum, Wavelet transform domain and finally the digital cinema watermarking transform domain. In this paper, a detailed technique is presented where embedding is performed using direct sequence spread spectrum technique in DWT transform domain. Experiment results shows that the algorithm provides high robustness and good imperceptibility.

**Keywords :** digital cinema, watermarking, wavelet DWT, spread spectrum, JPEG2000 MPEG4

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