A new embedding technique based on psychovisual threshold for robust and secure compressed video steganography

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ABSTRACT
Videos are often compressed to reduce storage and transmission payload at the expense of lower quality due to bandwidth-related issues. Most video steganography techniques do not provide robustness against compression technique. Thus, it is vital to develop a steganography technique that can be resistant against compression. This research proposed a new embedding technique in video steganography based on object motion and modified entropy. The object motions in the video frame were determined by horizontal and vertical motion vectors. The video frames that had object motion were computed by modified entropy. The proposed scheme embedded data along with the object motion by modifying Discrete Cosine Transform (DCT) coefficients in the video frames. Six DCT coefficients were selected in the middle frequency using DCT-psychovisual effects of hiding messages. The experimental results showed that the scheme achieved good robustness of message recovery in terms of Bit Error Rate (BER) and Normalised CrossCorrelation (NC). The recovered message of the proposed steganography scheme can survive video compression.

KEYWORDS
Discrete cosine transforms; Entropy; Video compression; Transforms; Transform coding; Robustness; Distortion

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