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Application of Integrated Steganography and Image Compressing Techniques for Confidential Information Transmission

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Chapter Abstract:
In the present day, images and videos account for nearly 80% of all the data transmitted during our daily activities. This work employs a combination of novel stegnography and data compression methodologies. So that the stego image generated while using stegnograpghy to the source textual image could be further compacted in an efficient and productive way and easily transmitted over the web. The initial inputs, textual images and images, are both pre-processed using spatial steganography, and the covertly content images are then extracted and inserted further into the carrier image picture element's least significant bit. Going to follow that, stego images were condensed in order to offer an elevated visual while conserving memory space just at sender's end. Nevertheless, it has been found that, throughout steganographic compression techniques, the wavelet transform is generally favored over the discrete cosine transform because the reassembled picture using the wavelet transformation seems to be of greater resolution than the discrete cosine transform. As pictures might not have been properly rebuilt given the limited bandwidth, the regions of interest method is often utilized to analyze the important area first, allowing the relevant portion of the image to be rebuilt even on a limited bandwidth network. The stego image would then have been sent to the recipient through a network connection. Now, at the receiver's end, steganography and compression are reciprocated. The performance of the suggested methods using different wavelet filters is examined to determine the best feasible outcome. So far, all efforts have been focused on creating a technique with a significant PSNR value and low data rates. Additionally, stego pictures can be effectively broadcasted, and textual visuals might well be easily recreated using a deep learning model over just a limited bandwidth connection.

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