

Lossless Image Compression with Embedded Encryption

Nimse Madhuri S, Nikita Aher, Utkarsha Holkar, Harsha Bhamare

Assistant Professor, Matoshri College of Engineering and Research Centre, Nashik, India

Abstract: *In today's digital landscape, image compression plays a vital role in protecting visual data throughout its processing journey. Over the years, numerous techniques have been developed to optimize image compression, with a focus on efficient data representation and application development. A common approach involves the content owner encrypting the original image using a secure key, rendering it inaccessible to unauthorized parties. Subsequently, a data hider may employ a separate key to compress specific bits of the encrypted image, creating a sparse space that can accommodate additional data. This encrypted image, now containing extra information, can be transmitted to a receiver. If the receiver possesses the data hiding key, they can extract the additional data without needing to know the image's content. Conversely, if the receiver has the encryption key, they can decrypt the received data to obtain an image similar to the original. Moreover, if the receiver has access to both keys, they can extract the additional data and recover the original image content, ensuring a secure and efficient data transmission process.*

Keywords: Reversible data hiding operations, data hiding, Cryptography, Steganography, Reversible data hiding