Secret Sharing in Visual Cryptography Using NVSS and Data Hiding Techniques

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Abstract : Visual Cryptography is a special unbreakable encryption technique that transforms the secret image into random noisy pixels. These shares are transmitted over the network and because of its noisy texture it attracts the hackers. To address this issue a Natural Visual Secret Sharing Scheme (NVSS) was introduced that uses natural shares either in digital or printed form to generate the noisy secret share. This scheme greatly reduces the transmission risk but causes distortion in the retrieved secret image through variation in settings and properties of digital devices used to capture the natural image during encryption / decryption phase. This paper proposes a new NVSS scheme that extracts the secret key from randomly selected unaltered multiple natural images. To further improve the security of the shares data hiding techniques such as Steganography and Alpha channel watermarking are proposed.