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# SECURE IMAGE STEGANOGRAPHY USING CRYPTOGRAPHY AND IMAGE TRANSPOSITION

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**Abstract:**
Information security is one of the most challenging problems in today's technological world. In order to secure the transmission of secret data over the public network (Internet), various schemes have been presented over the last decade. Steganography combined with cryptography, can be one of the best choices for solving this problem. This paper proposes a new steganographic method based on gray-level modification for true colour images using image transposition, secret key and cryptography. Both the secret key and secret information are initially encrypted using multiple encryption algorithms (bitxor operation, bits shuffling, and stego key-based encryption); these are, subsequently, hidden in the host image pixels. In addition, the input image is transposed before data hiding. Image transposition, bits shuffling, bitxoring, stego key-based encryption, and gray-level modification introduce five different security levels to the proposed scheme, making the data recovery extremely difficult for attackers. The proposed technique is evaluated by objective analysis using various image quality assessment metrics, producing promising results in terms of imperceptibility and security. Moreover, the high quality stego images and its minimal histogram changeability, also validate the effectiveness of the proposed approach.

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