A Modified Image Steganography Method based on LSB Technique

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Authors:
Marwa M. Emam, Abdelmgeid A. Aly, Fatma A. Omara

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Abstract

Data hiding techniques are considered very important roles with the rapid growth of intensive transfer of multimedia contents and secret communications. On the other hand, steganography is one of the most important information hiding techniques. By using steganography, information is hidden in carriers such as images, audio files, text files, and video files. In this paper, a modified steganography method based on the spatial domain is proposed. Our proposed method represents the message by six binary bits by using LSBraille method (Braille method of reading and writing for blind people) instead of using the ASCII encoding format. In this method, three bits of the message are hidden in a single pixel, and a true image is composed of three layers (Red, Green, and Blue) layer. Two bits are embedded in the Blue layer, and one bit is embedded in the green layer of the same pixel. In the Blue layer, the message is not only embedded in the least significant bit (LSB), but also the second and the third LSB may be changed. However, during each process of embedding, only one bit of the Blue layer is changed. From the experimental results, it is found that the proposed method achieves a very high Maximum Hiding Capacity (MHC), and higher visual quality as indicated by the Peak
Signal-to-Noise Ratio (PSNR).

References


Index Terms

Computer Science
Image Processing

Keywords

Steganography, Peak Signal-to-Noise Rate (PSNR), Mean Square Error (MSE), LSBraille, Maximum Hiding Capacity (MHC).