Informatica
An International Journal of Computing and Informatics

1977

Home > Vol 46, No 9 (2022) > **Almola**

ROBUST METHOD FOR EMBEDDING AN IMAGE INSIDE COVER IMAGE BASED ON LEAST SIGNIFICANT BIT STEGANOGRAPHY

Sahera A. Sead Almola, Najat Hameed Qasim, Hamid Ali Abed Alasadi

Abstract

According to the enormous evolution of the internet and communications, the security of private or sensitive information has become the important issue. The private information can be passed between a sender and a receiver with high security using Cryptography and Steganography. By the cryptography, as the information can be secured with the cipher key for encryption. By the Steganography, the secret information can hide within usual data such as images, videos, audios. In this paper we proposed the robust method that includes two phases. The first phase consists of two stages. In the first stage we encrypt a secret image using encryption algorithm in order of increasing security of information. In the second stage, we complete the first stage for embedding the most significant bits (MSB) of the encrypted image into the least significant bits(LSB) of the cover image for instituting the stego image. The second phase is the obverse of the first phase, where, the encrypted image is retrieved from the stego image and then, decrypted process construct the secret image. The proposed method is efficient in terms of security compare with the other methods. Where, both encryption and embedding algorithms have an efficient role for embedding the secret image and preserving the good visual quality of stego images. Furthermore, extraction algorithms obtained better and faster results to a restoration of the secret image.

Full Text:
PDF

References

Singh, P., & Singh, K. "Image encryption and decryption using blowfish algorithm in MATLAB", International Journal of Scientific & Engineering Research, 4(7), 150-154, 2013.

Zynab M. jasim, " Image Encryption Using Modification Blowfish Algorithm ", International Journal of Advances in Scientific Research and Engineering (ijasre), Vol 6 (3), March -2020.

Khan, J., Ahmad, J., & Hwang, S. O. , "An efficient image encryption scheme based on: Henon map, skew tent map and S-Box", In 2015 6th International Conference on Modeling, Simulation, and Applied Optimization (ICMSAO) (pp. 1-6). IEEE, May 2015.

Abdelfatah A., Ayman M., Omaima Al-Allaf. "Hiding an Image inside another Image using Variable-Rate Steganography" , International Journal of Advanced Computer Science and Applications, 2013.

Sally A. Mahdi & Maisa'a A. Khodher, " An Improved Method for Combine (LSB and MSB) Based on Color Image RGB", Engineering and Technology Journal, Vol. 39, No. 01, 2021.

Kothari, L. , Thakkar, R., & Khara, S. , " Data hiding on web using combination of Steganography and Cryptography", In 2017 International Conference on Computer, Communications and Electronics (Comptelix). 448- 452, IEEE, July 2017.

Namrata S. , "High PSNR based Image Steganography", International Journal of Advanced Engineering Research and Science, Vol. 6, No. 1, 2019.

Ashwak A. , Maisa'a Abid Ali K. Al-Dabbas , and Adnan S. , "Image steganography using the least significant bit and secret map techniques", Int. J. Electr. Comput. Eng., Vol. 10, 2020.

Yu Y. Wai and Ei. E. Myat, "Comparison of LSB, MSB and New Hybrid (NHB) of Steganography in Digital Image", International Journal of Engineering Trends and Applications, Vol. 5, No. 4, 2018.

Astuti, Y. P., Rachmawanto, E. H., & Sari, C. A. "Simple and secure image steganography using LSB and triple XOR operation on MSB", In 2018 International Conference on Information and Communications Technology (ICOIACT), 191-195, IEEE, 2018.

Shehzad, D., & Dag, T. "A novel image steganography technique based on similarity of bits pairs", In 2017 IEEE 8th Control and System Graduate Research Colloquium (ICSGRC), 99-104, IEEE, 2017.

Jain, Y. K., & Ahirwal, R. R. "A novel image steganography method with adaptive number of least significant bits modification based on private stegokeys", International Journal of

ABOUT THE AUTHORS

Sahera A. Sead Almola
Department of information system, College of Computer sciences and Information Technology, University of Basrah, Iraq
Iraq

Najat Hameed Qasim
Department of computer Science, College of Education for Pure Sciences, University of Basrah, Iraq
Iraq

Hamid Ali Abed Alasadi
Dr. Hamid Ali Abed AL-Asadi *Professor, Communications Engineering Department, Iraq University college, Istqlal Street, Basra, 61004, Iraq.
* Professor, computer Science department, University of Basrah, Basra, 61004, Iraq.
Iraq

Computer Science and Security, 4(1), 40-49, 2010.

Majeed, M. A., & Sulaiman, R. "AN IMPROVED LSB IMAGE STEGANOGRAPHY TECHNIQUE USING BIT-INVERSE IN 24 BIT COLOUR IMAGE", Journal of Theoretical & Applied Information Technology, 80(2), 2015.

Professor, University of Basrah

SUPPORT & INDEXING

Webmaster: Mario Konecki

| About | Current issue | Calls for papers | Submission