Abstract

In recent years, the chaos-based cryptographic algorithms have suggested some new and efficient ways to develop secure image encryption techniques. In this paper, a new approach for image encryption based on three chaotic logistic maps and multi-pseudo random block permutation has been proposed. This approach is developed to meet the requirements of a secure image transfer. In the proposed image encryption technique, the encryption process has been divided mainly into three steps; the first step is to encrypt the whole image using logistic map, the second step is to divide the image into a random number of blocks, the third step is to generate a random permutation for these blocks. Step two and three will be repeated for a fixed time of iterations. At experimental analysis, the proposed algorithm is compared with other four algorithms. The comparison results show that the proposed algorithm works more efficient than other algorithms. Furthermore, the results of several statistical analysis and key sensitivity tests show that the proposed algorithm provides an effective and secure way for real-time image encryption and transmission.

Refer
Image Encryption Algorithm based on Chaotic Map

References


Index Terms

Computer Science

Image Processing
Keywords

   Chaos  Logistic map  Image encryption  Algorithm