Abstract

In this paper a number of image encryption algorithms based on chaotic maps has been proposed. Images are routinely used in diverse areas such as medical, military, science, engineering, art, entertainment, advertising, education as well as training. The fundamental issue of protecting the confidentiality, integrity as well as the authenticity of images has become a major concern. Most of the available encryption algorithms are used for text data. However, due to large data size and real time requirement, the algorithms that are appropriate for textual data may not be suitable for multimedia data. Some cryptographic algorithms such as RSA, DES and AES are not sufficient for image encryption. We try to implement Image encryption using S-DES (Simplified Data Encryption Standard). In preceding work, most researchers used to make a image using a key and then encrypt the chaotic image using the same key, but in this paper first make a chaotic map of the image using S-DES. Then use that chaotic image as a key for encrypting the image using S-DES. Thus in this paper select the key when encrypt the image and use a chaotic image as a key not any other text. Thus the encryption speed is some faster in this implementation as compare to previous work. S-DES is the reduced algorithm of DES. DES uses a well-known block cipher; it adopts Fiestel structure to iterate. The key Quantities achieve 56 bits, using the only key in an encryption is not safe obviously. Therefore a new approach has been proposed named as S-DES, which also adopts Fiestel structure.
Combining the chaotic map with S-DES system can enhance the security of system by using the characteristic of sensibility of original value and randomness in chaotic map. Thus the encryption speed is fast in this implementation as compare to previous work.

References


Index Terms

Computer Science  Security

Keywords

Image encryption  DES  S-DES  Chaotic map.