

A combination of chaos and blind source separation for image encryption

陳俊宏, 許隆結, 董子儀, 陳獻庚, 邱弘興, 翁偉泰

Mechanical Engineering

Engineering

ljsheu@chu.edu.tw

Abstract

We propose a new perspective on image encryption using chaotic signal and blind source separation. The original image is permuted by the chaotic signal and then mixed with key images. In the receiver, blind source separation technique is used to separate the components of the original image from the ciphertexts. Then chaotic signal is again used to restore the pixels to recover the original image. The experimental results demonstrate that the key space is large enough to resist the brute force attack and the distribution of gray values of the encrypted image has a random-like behavior.

Keyword : image encryption, blind source separation, chaos