Abstract

Visual cryptography encodes a secret binary image (SI) into shares of random binary patterns. The decoding process of a visual cryptography scheme, which differs from traditional secret sharing, does not need any cryptographic algorithms like symmetric and asymmetric algorithms. Visual cryptography is based on the images and is obtained by sending pixel information and stacking of pixels for recovery of the secret image. Instead of using binary patterns of the shares, which does not give any visual meaning and hinder the objectives of visual cryptography, halftone visual cryptography via error diffusion is used that encodes a secret binary image into n halftone shares (images) carrying significant visual information. When secrecy is important factor rather than the quality of recovered image the shares must be of better visual quality. Error diffusion has low complexity and provides halftone shares with good image quality. Different filters such as Floyd-Steinberg, Jarvis, Stuki, Burkes, Sierra, and Stevenson’s-Arce are used and their impact on visual quality of shares is seen. The simulation shows that error filters used in error diffusion lays a great impact on the visual quality of the shares and better shares can be obtained by using complex filters without affecting the objectives of visual cryptography.

References
Performance of Error Filters on Shares in Halftone Visual Cryptography via Error Diffusion


Index Terms

Computer Science Security
Keywords
Visual Cryptography  Error Diffusion  Halftone Visual Cryptography  Secret Sharing