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## An Adaptive Secret Image Sharing with a New Bitwise Steganographic Property

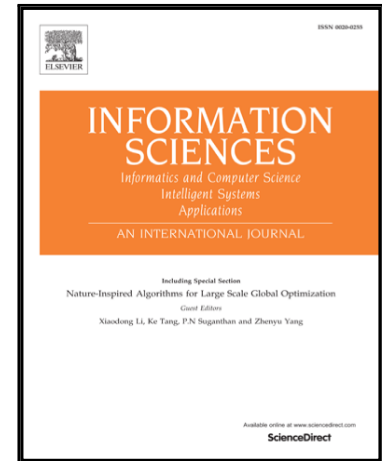
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# An Adaptive Secret Image Sharing with a New Bitwise Steganographic Property

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## Abstract

Recently, numerous studies have been conducted in the area of secret image sharing and steganography. The main objective of these schemes is to produce high-quality tampering-resistant stego images. A number of these methods are based on least significant bit embedding and hence, the presence of hidden data can be detected by well-designed steganalysis algorithms.

This paper proposes a new sharing scheme for critical images so that stego images are obtained with better visual quality, and at the same time, the authentication ability can be adjusted to any desired level (*adaptive*). In order to achieve these objectives, the construction of cellular automata is modified so that visual quality is improved, although authentication bits are hidden in cover images. Furthermore, authentication bits are computed in such a way that any tampering with one block affects more than one block. For steganographic purposes, least significant bit replacement is substituted with a new blockwise XOR operation, so that the scheme can withstand steganalysis attacks. The other interesting property of the proposed method is that the size of blocks is determined dynamically, therefore our approach can be adapted with secret/cover images of different sizes.

*Key words:* secret image sharing, steganography, adaptive authentication, visual quality

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