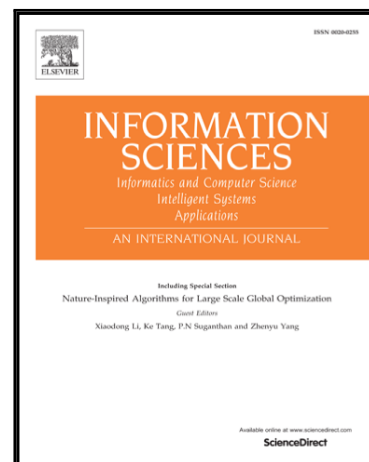


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Design of image cipher using block-based scrambling and image filtering

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Highlights

- An image cipher using block-based scrambling and image filtering (IC-BSIF) is introduced;
- It is the first time that image filtering is used to do encryption;
- IC-BSIF uses the well-known substitution-permutation network and strictly follows the principles of confusion and diffusion;
- The block-based scrambling is to fast separate neighboring pixels to different rows and columns, and thus can sufficiently weakness the strong correlation between adjacent pixels;
- Using randomly generated masks, the operation of image filtering can spread little change in plain-images to the entire pixels of cipher-images;
- IC-BSIF can encrypt different kinds of images into noise-like ones, and security evaluations demonstrate that it can achieve better performance than some state-of-the-art encryption schemes.

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