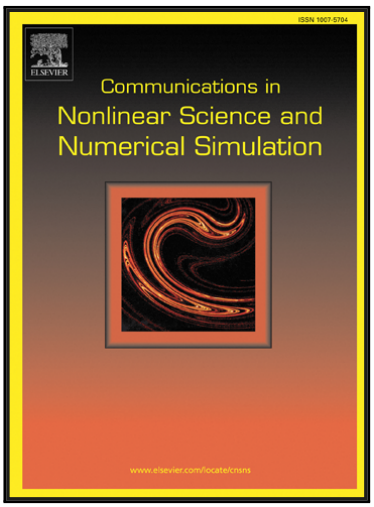

An efficient and secure chaotic cipher algorithm for image content preservation

Souyah Amina , Faraoun Kamel Mohamed

PII: S1007-5704(17)30439-2
DOI: 10.1016/j.cnsns.2017.12.017
Reference: CNSNS 4408

To appear in: *Communications in Nonlinear Science and Numerical Simulation*

Received date: 12 November 2016
Revised date: 27 October 2017
Accepted date: 30 December 2017

Please cite this article as: Souyah Amina , Faraoun Kamel Mohamed , An efficient and secure chaotic cipher algorithm for image content preservation, *Communications in Nonlinear Science and Numerical Simulation* (2017), doi: 10.1016/j.cnsns.2017.12.017

Highlights:

- A new chaotic cipher algorithm for efficient and secure image content preservation is suggested, the proposal is well-suited for both standard and medical images, under just one round.
- The proposal consists of two modules, which are iteratively performed: chaotic confusion and pixel diffusion, the first module is governed by means of a nonlinear bit-level shuffling and circular-shifting, while the second module is ruled by means of an improved expanded XOR (eXOR) operation, the whole cryptosystem is controlled by the generated chaotic sequences of Logistic Tent System (LTS).
- The obtained results indicate the high performance in terms of execution-time and security level of the proposed cipher algorithm, and hence confirm its efficiency for real-time secure image transmission.