



Full text at publisher 

Export ▾

Add To Marked List

< 1 of 1 >

# Image encryption using 2D Logistic-adjusted-Sine map

 Highly Cited Paper

**By** [Hua, ZY \(Hua, Zhongyun\) \[1\]](#); [Zhou, YC \(Zhou, Yicong\) \[1\]](#)  
[View Web of Science ResearcherID and ORCID](#) (provided by Clarivate)

**Source** [INFORMATION SCIENCES ▾](#)  
Volume: 339 Page: 237-253  
DOI: 10.1016/j.ins.2016.01.017

**Published** APR 20 2016

**Indexed** 2016-04-20

**Document Type** Article

**Abstract** With complex properties of ergodicity, unpredictability and sensitivity to initial states, chaotic systems are widely used in cryptography. This paper proposes a two-dimensional Logistic-adjusted-Sine map (2D-LASM). Performance evaluations show that it has better ergodicity and unpredictability, and a wide chaotic range than many existing chaotic maps. Using the



proposed map, this paper further designs a 2D-LASM-based image encryption scheme (LAS-IES). The principle of diffusion and confusion are strictly fulfilled, and a mechanism of adding random values to plain-image is designed to enhance the security level of cipher-image. Simulation results and security analysis show that LAS-IES can efficiently encrypt different kinds of images into random-like ones that have strong ability of resisting various security attacks. (C) Elsevier Inc. All rights reserved.

**Keywords**

**Author Keywords:** Chaotic map; Chaotic encryption; Confusion and diffusion; Image encryption

**Keywords Plus:** CHAOTIC SYSTEM; KOLMOGOROV-ENTROPY; SCHEME; ALGORITHM; CRYPTANALYSIS; CIPHERS; BREAKING

**Author Information**

Corresponding Address: Zhou, Yicong (corresponding author)

▼ Univ Macau, Dept Comp & Informat Sci, Macau 999078, Peoples R China

E-mail Addresses :

[yicongzhou@umac.mo](mailto:yicongzhou@umac.mo)

Addresses :

▼<sup>1</sup> Univ Macau, Dept Comp & Informat Sci, Macau 999078, Peoples R China:

E-mail Addresses :

[huazyum@gmail.com](mailto:huazyum@gmail.com); [yicongzhou@umac.mo](mailto:yicongzhou@umac.mo)

**Categories/ Classification**

Research Areas: Computer Science

Citation Topics: 4 Electrical Engineering, 4.101 Security, 4.101.1713 Electronics & Computer Science > Encryption & Encoding > Image Encryption

**Web of Science Categories**

Computer Science, Information Systems

**Funding**

[View funding text](#) 

Funding agency	Grant number
Macau Science and Technology Development Fund	FDCT/016/2015/A1
Research Committee at University of Macau	MYRG2014-00003-FST
	MYRG113 (Y1-L3)-FST12-ZYC
	MRG001/ZYC/2013/FST

[+ See more data fields](#)

## Journal information

[INFORMATION SCIENCES](#) 

ISSN 0020-0255

eISSN 1872-6291

**Current Publisher** ELSEVIER SCIENCE INC, STE 800, 230 PARK AVE, NEW YORK, NY 10169

**Research Areas** Computer Science

**Web of Science Categories** Computer Science, Information Systems

**2.09**


Journal  
Citation  
Indicator™  
(2023)

[Citation Network](#)[Use in Web of Science](#)

11

In Web of Science Core Collection

**544**  
Citations

 [Create citation alert](#)

**15**  
Last 180 Days

**333**  
Since 2013

**565** [+ See more times cited](#)  
Times  
Cited in [≡ View citing preprints](#)  
All  
Databases

**52** [→ View Related Records](#)  
Cited  
References

[Learn more →](#)

### This record is from:

#### Web of Science Core Collection

- Science Citation Index Expanded (SCI-EXPANDED)

How does this document's citation performance compare to peers?

[← Open comparison metrics panel](#)

New

### Suggest a correction

If you would like to improve the quality of the data in this record, please [Suggest a correction](#)

Data is from InCites Benchmarking & Analytics

### Citing items by classification New

Breakdown of how this article has been mentioned, based on available citation context data and snippets from 199 citing item(s).

