

Accepted Manuscript

Title: Color image encryption using MSVD, DWT and Arnold transform in fractional Fourier domain

Author: Ankita Vaish Manoj Kumar

PII: S0030-4026(17)30858-6
DOI: <http://dx.doi.org/doi:10.1016/j.ijleo.2017.07.041>
Reference: IJLEO 59437

To appear in:

Received date: 11-10-2016
Revised date: 11-5-2017
Accepted date: 16-7-2017



Please cite this article as: Ankita Vaish, Manoj Kumar, Color image encryption using MSVD, DWT and Arnold transform in fractional Fourier domain, *Optik - International Journal for Light and Electron Optics* (2017), <http://dx.doi.org/10.1016/j.ijleo.2017.07.041>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Color image encryption using MSVD, DWT and Arnold transform in fractional Fourier domain

Manoj Kumar¹, Ankita Vaish^{2*}

^{1, 2}*Babasaheb Bhimrao Ambedkar University, Lucknow, (U.P.), India.*

Abstract

This paper presents, a new image encryption technique using Multiresolution Singular Value Decomposition (MSVD), Discrete Wavelet Transform (DWT) and Arnold transform in fractional domain. Images are encrypted using keys of FrFT, subbands of MSVD and DWT along with the use of parameters generated by MSVD in various DWT subbands and Arnold transform. We have used keys of FrFT, the arrangement of MSVD and wavelet subbands, values and arrangement of parameters generated by MSVD in various DWT subbands, the use of Arnold transform and the way of arrangement of several subimages as encryption and decryption keys. For the correct decryption of encrypted images it is required to have correct knowledge of all the keys in correct order along with their exact values. The effectiveness of proposed work is analyzed by comparing it with some related works, the comparison verifies that the proposed work has obtained an increased level of security and robustness when compared to exiting works.

Keywords: Arnold transform, Image encryption, Discrete wavelet transform, Fractional fourier transform, Multiresolution singular value decomposition.

1. Introduction

With the ever growing field of multimedia applications, a lot of information is being transferred all around the world over the public networks. However, direct transmission of the secret information over the public networks is not preferable due to security reasons.

*Corresponding author.

URL: av211ko@gmail.com (Ankita Vaish²)

¹Assistant Professor, Babasaheb Bhimrao Ambedkar University, Lucknow, (U.P.), India.

²Research Scholar, Babasaheb Bhimrao Ambedkar University, Lucknow, (U.P.), India.

Download English Version:

<https://daneshyari.com/en/article/5025318>

Download Persian Version:

<https://daneshyari.com/article/5025318>

[Daneshyari.com](https://daneshyari.com)