**A New Color Image Encryption using Combination of the 1D Chaotic Map**

**ABSTRACT**

This paper introduces a method of making of a simple and effective chaotic system by using a difference of the output sequences of two same existing one-dimension (1D) chaotic maps. Simulations and performance evaluations show that the proposed system is able to produce a one-dimension (1D) chaotic system with better chaotic performances and larger chaotic ranges compared with the previous chaotic maps. To investigate its applications in image encryption, a novel encryption system of linear-nonlinear-linear structure based on total shuffling is proposed. The experiment demonstrated the accuracy of the encryption algorithm. Experiments and security analysis prove that the algorithm has an excellent performance in image encryption and various attacks.

***Keywords:*** Chaos; Chaotic system, Image encryption