Abstract

The hybridization of DNA with reversible cellular automata techniques is an open area of research. This paper has focused on reversible cellular automata technique and DNA cryptographic operations which are used for compressing and encrypting together for an image. Usually, the image encryption techniques have more focused towards the providing security while there is a still room for an improvement in computational speed. An efficient approach for achieving higher information security at fast speed can be termed as “image encryption using hybridized DNA cryptography and reversible cellular automata”. The algorithm mechanism is such that the original image is measured by measurement matrices in two directions to achieve compression and encryption simultaneously. Then DNA sequence operations are performed on the resultant image for further security. These DNA sequence operations include DNA addition and subtraction using DNA coding rules. The sequences worked under the control of 2D logistic map. Hence, the proposed technique is capable of providing security quickly as compared to existing technique.
References


Index Terms

Computer Science Security

Keywords
Image encryption, DNA cryptography, Reversible cellular automata, 2D logistic map, Chaos theory