Ministry of Higher Education and Scientific Research
University of Babylon
College of Information Technology
Department of Information Security
Study: (Morning)

Aggregate DNA Cryptography Security using Chaotic Algorithm

مشروع التخرج هو احد متطلبات الحصول على درجة البكالوريوس في تخصص امنية المعلومات في تكنولوجيا المعلومات.

A Graduate Project Submitted to the department of Information Security of the College of Information Technology, University of Babylon, in Partial Fulfillment of the Requirements for the Bachelor's degree in the Information Security of Information Technology

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Abstract

A number of techniques for securing images have been developed in cryptography using jointly DNA computing and Chaos Theory. With the advancement of DNA/quantum computing, the threats of security breaches to information have an increasing possibility. In order to prevent unwanted access to sensitive data by unauthorized individuals, images are encoded.

Because chaotic-DNA encoding can make information highly secure, it is often employed in image encryption. In this object, an image encryption technique has been proposed based on a chaotic system and DNA computing.

In this project, we propose a symmetric encryption algorithm for images by in order to complete the encryption process, we need to generate an encryption key, and this is done by using the chaotic algorithm. As for encoding the values of pixels, this is done by using DNA.

Also, XOR was used to encrypt the image, meaning that XOR needs the encryption key from the chaotic algorithm and the pixel values from DNA.