

ABSTRACT

The development of increasingly sophisticated technology that allows one to exchange information such as text, images, audio and video. When this information becomes a fundamental requirement in a communication. Security and confidentiality of information becomes an important as the Internet as a medium is used. Digital image is one medium that can be used to insert a secret message. This technology is often called steganography techniques. Various methods have been developed in steganography techniques, one of which is a technique LSB (Least Significant Bit). LSB technique is a technique of embedding secret message bits into smaller bits worth on the *cover* image. Disadvantages of the system is the declining quality of the original image stego giving rise to suspicion that unauthorized parties.

In this final project has been implemented Adaptive LSB steganography that messages are pasted achieve higher capacity and causes no gradations in the image. Moreover, the authors minimize the gradation of images inserted a secret message bits to randomize the order of messages using the logistic map system based on *Chaos* and Genetic Algorithm (AG). Characteristics of *Chaos* system are sensitive to small changes in initial parameter values have been used for cryptographic applications. AG offers solutions to improve system security, robustness to noise and balance the two. In this final project Genetic Algorithm randomly select folder logistic map equation to obtain the best individual to be the key message randomization. Thus been obtained randomization message similar to the message bits LSB before. Simulator used in this final project is a MATLAB R2009b.

The results using adaptive LSB steganography based on logistic map ang Genetic Algorithm stego object obtained with a high degree of similarity with the *cover* image according to the parameters of MOS and according to the simulation results. Best performance occurs in stego image is the *cover* image for each size seen from the PSNR and MSE. Highest PSNR 55.5552 dB with MSE 0.18095 on image size 512 x 512 pixels. But the system using the AG has a total computing time is longer when compared to systems that do not use the AG. Systems that have been made have resistance to Gaussian noise attack density 0.2 and has a resistance to noise attack resize and rotation 90°, 180° and 270°. Message length 50 and 100 characters, the messages can always be extracted correctly with a correlation value of 1 or mistakes. System performance is affected by the *cover* image type, image size *cover* and length of secret messages.

Keyword : Adaptive LSB, Logistic Map, Genetic Algorithm