

Abstract

There are two things notice in the medical image of ownership authentication and digital image authenticity. While the digital image is vulnerable to manipulation that occurred. And the ownership of a patient's digital image can be intentionally or accidentally interchanged. It can be detrimental to a patient. The- refore, a system capable of protecting medical image ownership and protection of a strong medical record is essential. The system uses watermarking techniques to protect digital images by inserting information inside. There are three methods in this system, Discrete Wavelet Transform (DWT) method combined with Discrete Cosine Transform (DCT) method and optimized with Particle Swarm Optimization (PSO) method to find the optimal scale factor value. The tests used to measure the performance of the system are Peak Signal to Noise Ratio (PSNR) and Normalized-Cross Correlation (NCC). Of the three methods, it was found that there was no change in PSNR and NCC values after optimization. So the system has robustness so as to protect the authenticity of digital images despite getting attacks in the form of noise and sharpening.

Keywords: watermarking, PSO, DWT, DCT, medical image.