Abstract

In the past decade, there has been an escalation in the use and distribution of digital media such as digital image. To overcome unauthorized access and manipulation of the digital media, a technique can be used, called watermarking.

Digital watermarking is the process of embedding information into digital media such as audio, image and also video, the embedded information can later be extracted and used as proof of ownership. The embedding and extraction process can be done by many methods such as DWT-ANN.

DWT-ANN is the combination of two method, DWT and ANN, where each method own different characteristic, DWT worked at domain frequency, so the process will be less visible, and ANN which imitate the process of the nerve system, theoretically, will give good enough result in pattern recognition and can be used in the extraction of the watermark.

In this image watermarking process, the image file will be processed in several stages, first is by converting color space of the image file from RGB to YCrCb color space, then decomposed using DWT where the image will be treated as a signal and passed through a filter and categorized based on frequencies, after that, Back-Propagation Neural Network (BPNN) will be used to learn the connections between a coefficient which will be embedded with information with 8 of its neighboring coefficient.

Keywords: **Blind watermarking, image, DWT, Neural networks**.