

ETSJ011 - IMAGE WATER MARKING & COMBUSTION

Abstract — Watermarking is a technique used to hide data or identifying information within digital multimedia. Our discussion will focus primarily on the watermarking of digital images, though digital video, audio, and documents are also routinely watermarked. Digital watermarking is becoming popular, especially for adding undetectable identifying marks, such as author or copyright information. Because of this use, watermarking techniques are often evaluated based on their invisibility, recoverability, and robustness. Our goal was to implement two different watermarking methods and evaluate their susceptibility to attack by various image processing techniques. Additionally, we wanted to create a GUI that would allow users unfamiliar with Matlab to add and extract watermarks, as well as evaluate their respective robustness based on a few morphological image attacks. After learning about watermarking by bit-plane slicing in class, we were very interested to investigate the process by which one watermarks an image, as well as the degree to which the original image is changed by the watermarking process. To help us learn how images can be watermarked, we decided to implement two watermarking techniques, watermarking by bit-plane slicing and watermarking using the Cox method. It was extremely difficult to decide which watermarking methods to implement, because there are a multitude of different methods by which to watermark an image. The Cox method and the bit-plane method allowed us to take two very different approaches to watermarking. We got to work in both the spatial and frequency domain, as well as having different goals for each method. Our bit-plane slicing approach is designed to work primarily as a fragile watermark. A fragile watermark shows the degree to which changes are made to an image.