

Multimedia Encryption, Transmission and Authentication

Edited by

Othman Omran Khalifa, B.Sc., M.Sc., Ph.D.
International Islamic University Malaysia

Aisha-Hassan Abdulla, B.Sc., M.Sc., Ph.D.,
International Islamic University Malaysia

Teddy Surya Gunawan, B.Sc., M.Sc., Ph.D.,
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Chapter 23

STATE-OF-THE-ART DIGITAL WATERMARKING ATTACKS

Othman O. Khalifa and Yusnita binti Yusof
Electrical and Computer Engineering
International Islamic University Malaysia
khalifa@iium.edu.my, yusnita@ucti.edu.my

23.1 Introduction

Digital watermarking is a huge research area which is progressively growing. It covers theoretical studies, novel techniques, attacks and performance analysis. An embedded watermark may unintentionally or inadvertently be impaired by such processing. Other types of processing may be applied with the explicit goal of hindering watermark reception. In watermarking terminology, an “attack” is any processing that may impair detection of the watermark or communication of the information conveyed by the watermark. Broadly it can be classified as Intentional Attacks and Non-Intentional Attacks.

The processed watermarked data is then called “attacked data”. An important aspect of any Watermarking scheme is its robustness against attacks. The notion of robustness is intuitively clear: A watermark is robust if it cannot be impaired without also rendering the attacked data useless. Watermark impairment can be measured by criteria such as miss probability, probability of bit error, or channel capacity. For multimedia, the usefulness of the attacked data can be gauged by considering its perceptual quality or distortion. Hence, robustness can be evaluated by simultaneously considering watermark impairment and the distortion of the attacked data. An attack succeeds in defeating a watermarking scheme if it impairs the watermark beyond acceptable limits while maintaining the perceptual quality of the attacked data. In this chapter, JPEG compression (quality 50 and 75), noise (Gaussian noise), distortion (blurring) and contrast enhancement (histogram equalization and intensity adjustment) been testified.