ABSTRACT

Digital watermarking techniques have been developed to protect the copyright of media signals. This chapter aims to provide a universal review and background about the watermarking definition, concept and the main contributions in this field. The chapter starts with a general view of digital data, the Internet and the products of these two, namely, the multimedia and the e-commerce. Then, it provides the reader with some initial background and history of digital watermarking. The chapter presents an extensive and deep literature review of the field of digital watermarking and watermarking algorithms. It also highlights the future prospective of the digital watermarking.

INTRODUCTION

Digital watermarking techniques have been developed to protect the copyright of media signals. Different watermarking schemes have been suggested for multimedia content (images, video and audio signal). This chapter aims to provide an extensive literature review of the multimedia copyright protection. It presents a universal review and background about the watermarking definition, concept and the main contributions in this field. The chapter consists of four main sections.
The first section provides a general view of digital data, the Internet and the
products of these two, namely multimedia and e-commerce. It starts this chapter
by providing the reader with some initial background and history of digital
watermarking. The second section gives an extensive and deep literature review
of the field of digital watermarking. The third section reviews digital-watermarking
algorithms, which are classified into three main groups according to the embed-
ding domain. These groups are spatial domain techniques, transform domain
techniques and feature domain techniques. The algorithms of the frequency
domain are further subdivided into wavelet, DCT and fractal transform tech-
niques. The contributions of the algorithms presented in this section are analyzed
briefly. The fourth section discusses the future prospective of digital watermarking.

DIGITAL INTELLECTUAL PROPERTY

Information is becoming widely available via global networks. These
connected networks allow cross-references between databases. The advent of
multimedia is allowing different applications to mix sound, images, and video and
to interact with large amounts of information (e.g., in e-business, distance
education, and human-machine interface). The industry is investing to deliver
audio, image and video data in electronic form to customers, and broadcast
Television companies, major corporations and photo archivers are converting
their content from analogue to digital form. This movement from traditional
content, such as paper documents, analogue recordings, to digital media is due
to several advantages of digital media over the traditional media. Some of these
advantages are:

1. The quality of digital signals is higher than that of their corresponding
analogue signals. Traditional assets degrade in quality as time passes.
Analogue data require expensive systems to obtain high quality copies,
whereas digital data can be easily copied without loss of fidelity.

2. Digital data (audio, image and video signals) can be easily transmitted over
networks, for example the Internet. A large amount of multimedia data is
now available to users all over the world. This expansion will continue at an
even greater rate with the widening availability of advanced multimedia
services like electronic commerce, advertising, interactive TV, digital
libraries, and a lot more.

3. Exact copies of digital data can be easily made. This is very useful but it also
creates problems for the owner of valuable digital data like precious digital
images. Replicas of a given piece of digital data cannot be distinguished and
their origin cannot be confirmed. It is impossible to determine which piece
is the original and which is the copy.

4. It is possible to hide some information within digital data in such a way that
data modifications are undetectable for the human senses.
The Different Aspects of Information Security Education
www.igi-global.com/chapter/the-different-aspects-of-information-security-education/206784?camid=4v1a