Chapter 16
Digital Video Watermarking Using Diverse Watermarking Schemes

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ABSTRACT

As the significance of the internet is increasing day by day so is the need of protecting the media over the internet. In order to protect the copyright information of the media over the internet, the authors use the technique of watermarking. Watermarking is the process of embedding a watermark in the media and then extracting it for ownership verification. Different types of watermarking schemes exist in the world, but we always look for techniques which are highly imperceptible and do not lead to loss of fidelity. Here the researchers have put forward a technique that instills different watermarking schemes to different sets of frames.

INTRODUCTION

With the advent of internet in 1967, it has revolutionized the fields of communication and computer unlike anything before (Maity & Kundu, 2002). Since then it has grown exponentially and has become a vast information reserve. Nowadays people prefer to search the internet than looking into any book, to gain knowledge on the subject that intrigues them.

Internet has now become the easiest way of sharing information and with the growth of social networking sites, doing the latter with the masses has become even easier and it can be done quite briskly. People now buy storage spaces over the internet so that they can have access to their works from anywhere in the world. With the increase of information and digital content over the internet the need and necessity of multimedia security and copyright protection arises (Agrawal, Gupta, & Chakraborty, 2015; Natarajan & Makhdumi, 2009). So in order to stop theft and lose of fidelity of digital content we need to develop techniques to safeguard the digital contents (Lai, & Tsai, 2010). Digital Watermarking is one such technique that is used for copyright protection of digital media.

BACKGROUND

What Is Digital Watermarking?

Copyright Protection incorporates a logo or some ownership information into the digital media without affecting its perceptibility (Agrawal, Gupta, & Chakraborty, 2015; Yeo, & Yeung, 1997). Hence, in case of a conflict, the logo can effectively be extracted from the digital media in order to claim the ownership rights. Watermarking is a process of embedding some data called the watermark or the digital signature into the digital media (Sinha, Bardhan, Pramanick, Jagatramka, Kole, & Chakraborty, 2011). Here the researchers will primarily focus on Digital Video Watermarking.

What Is Digital Video Watermarking?

Digital Video Watermarking is a method of copyright protection of videos in which a watermark is added to the original video without affecting its perceivable quality (Yeo, & Yeung, 1997; Doerr, & Dugelay, 2003). For a watermarking scheme to be used for copyright protection, it should fulfill two criterions i.e. it must be robust against attacks like signal processing and lossy compression and it should not lead to loss of fidelity (Al-Khatib, Al-Haj & Lama-Rajab, 2008). Some watermarking techniques require the original video for the detection of the watermark. This is called a non-blind watermark detection method while there are some watermarking techniques which do not require the original video for watermark detection (Maity & Kundu, 2002). This is called blind watermark detection method and is usually preferred.

Types of Watermarks

As per human perception the watermark can be of three types, visible, invisible and dual. (Potkar, & Ansari, 2014).As the name suggests, a visible watermark is perceivable but an invisible watermark is not. For e.g. a watermark is to be added to an image or a video then in case of a visible watermark, the watermark can be seen on the image or on the video frames but in case of invisible watermarks, a layman would not be able to differentiate whether a watermark has been added to the digital media or not. A Dual watermark incorporates both visible and invisible watermarks to the video. Here the invisible watermark is kept as a backup for the visible watermark. The researchers' can choose anyone of them as per our requirements and necessities.

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