

# Multimedia Encryption, Transmission and Authentication

Edited by

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# Chapter 1

## IMAGE AND VIDEO CODING TECHNIQUES

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### 1.1.INTRODUCTION

The visual communication has reached a point of becoming a lively area in this new era. The main challenge for implementing video communication system is accessible bandwidth of the network. Usually this necessary bandwidth is not enough for the deployment of enormous amount of video data.

Solving this matter is indeed critical. Considerable efforts have been exerted in the last decades for improving video compression techniques. These efforts have resulted in the video coding standards such as H.261 (ITa), H.263 (ITb), MPEG-1(Ib), MPEG-2(ITc), MPEG-4(Ia) and more [1].

Nowadays, the progress of digital image and video compression is remarkable. In various domains of telecommunication field such as internet teleconferencing, high definition television (HDTV), satellite communication and digital storage of movies would not be feasible without a highly reliable compression technique. Nevertheless, such applications are still far from achieving their full potential due to the limitations of the existing image compression techniques.

For video encoding, there are two ways to compress the video signals: non-scalable video coding and scalable video coding. In non-scalable video coding, the video content is encoded independent of actual channel characteristics. In this method, coding efficiency is the most important factor and the compression is optimized at a pre-specified rate. The main problem with this method is that it is difficult to adaptively stream non-scalable video contents to heterogeneous client terminals over time-varying communication channels [2].