

# **A Study on Information Hiding in MPEG4 Videos and Applications to Copyright Protection and Security Surveillance**

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## **Abstract**

With the advance of multimedia technologies and the popularity of computer networks, more and more multimedia data, especially digital videos, are transmitted through the Internet quickly. In this study, several methods for information hiding applications, namely, copyright protection, authentication, and data association, are proposed using MPEG-4 videos as cover media. For copyright protection, in order to protect the ownership of downloaded videos at the client site, a method using an active visible watermarking technique and limiting video play counts is proposed. Due to the insecurity of transmitting data on the Internet, receivers cannot make sure that digital videos received from the Internet are authentic. Therefore, an authentication method for verifying the integrity and fidelity of MPEG-4 videos, especially of surveillance videos, is proposed next. Because a surveillance video might contain scene frames including suspicious or criminal acts, malicious users might tamper with it for misrepresentation. Therefore, an effective method for searching a surveillance video for infrequent motions or specific events using an information hiding technique is proposed finally. Good experimental results show the feasibility of the proposed methods.