A Novel Watermarking Approach for Protecting Image Integrity based on a Hybrid Security Technique

Abstract

Digital Photo images are everywhere around us in journals, on walls, and over the Internet. However we have to be conscious that seeing does not always imply reality. Photo images become a rich subject of manipulations due to the advanced digital cameras as well as photo editing software. Accordingly, image forgery is becoming much easier using the existing tools in terms of time and accuracy, and thus the forensics of detecting an image forgery case is becoming difficult and needs more and more time and techniques to prove the image originality especially as crime evidences and court related cases. In this paper, a framework with associated algorithms and methodologies is proposed to ensure the authenticity of the image and the integrity of the content in addition to protecting the photo image against forgery suspects. The framework depends on developing new generation of certified digital cameras that could produce authenticated and forgery-proof photos. The proposed methodology generates an irreversible hash integrity code from the image content based on color matrix calculations and steganography algorithms. The simulation results proved the capability of the proposed technique to detect image forgery cases in more than 16 scenarios of manipulation.
References


**Index Terms**

Computer Science Security

**Keywords**

Image Forgery Detection, Image Quality Assessment, Integrity Protection.