

Guest Editorial Preface

Special Issue on Multimedia Security and Forensics

Xianfeng Zhao, Chinese Academy of Sciences, Beijing, China

Whereas the wide use of multimedia improves the quality of people's life and work, it also introduces new security issues. Noticeably, with the development of editing tools, multimedia content can be unperceivably manipulated or tampered. It makes the judicial use of multimedia proofs more difficult. And because digital multimedia have much more coding redundancy, they give covert communication channels which have been exploited by information hiding. For example, the spread of steganography tools challenges current security protection or investigation.

To tackle the problems, multimedia security and forensics have been researched worldwide for almost 20 years, and many useful approaches have been proposed. Typically, a series of forensic methods have been designed for detecting multimedia forgery and information hiding. And watermarking has been used for protecting both the copyright and the integrity of multimedia. It provides an active way of forensics. By contrast, anti-forensics techniques have also been improved. For instance, adaptive embedding has substantially improved the security of information hiding, and the forgery methods can effectively apply additional processing to some forensic systems.

Nowadays, multimedia security and forensic is still a hot research field. While most methods have been improved, the attacks on them also have become more clever and effective. To make the readers of IJDCF more aware of the development as well as the existing problems, it is worth dedicating a special issue to the recent results in the field.

This special issue has 5 papers which covers the important areas in the field of multimedia security and forensics. In the area of blind forensics, new advantageous features are respectively proposed for distinguishing natural human voice from the synthetic one, and detecting the forged voice or image content made by copy-move and copy-splice skills. In the area of watermarking, a new scheme based on finite ridgelet transform is proposed for protecting the content integrity of medical photos. In addition, an anti-forensic scheme is proposed for further improving the security of steganography by hiding its communication behavior over networks.

I hope that this special issue will bring the readers closer to the new technologies of multimedia security and forensics.

Xianfeng Zhao
Guest Editor
IJDCF