

MULTIMEDIA SECURITY: WATERMARKING, STEGANOGRAPHY, AND FORENSICS



EDITED BY

FRANK Y. SHIH



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Multimedia Security Watermarking Steganography And Forensics

Yun Qing Shi

Multimedia Security Watermarking Steganography And Forensics:

Multimedia Security Frank Y. Shih, 2012-08-25 Multimedia Security Watermarking Steganography and Forensics outlines essential principles technical information and expert insights on multimedia security technology used to prove that content is authentic and has not been altered. Illustrating the need for improved content security as the Internet and digital multimedia applications rapidly evolve this book presents a wealth of everyday protection application examples in fields including multimedia mining and classification digital watermarking steganography and digital forensics. Giving readers an in depth overview of different aspects of information security mechanisms and methods this resource also serves as an instructional tool on how to use the fundamental theoretical framework required for the development of extensive advanced techniques. The presentation of several robust algorithms illustrates this framework helping readers to quickly master and apply fundamental principles. Presented case studies cover The execution and feasibility of techniques used to discover hidden knowledge by applying multimedia duplicate mining methods to large multimedia content. Different types of image steganographic schemes based on vector quantization. Techniques used to detect changes in human motion behavior and to classify different types of small group motion behavior. Useful for students researchers and professionals this book consists of a variety of technical tutorials that offer an abundance of graphs and examples to powerfully convey the principles of multimedia security and steganography. Imparting the extensive experience of the contributors this approach simplifies problems helping readers more easily understand even the most complicated theories. It also enables them to uncover novel concepts involved in the implementation of algorithms which can lead to the discovery of new problems and new means of solving them.

Digital Watermarking and Steganography Frank Y. Shih, 2017-04-10 This book intends to provide a comprehensive overview on different aspects of mechanisms and techniques for information security. It is written for students researchers and professionals studying in the field of multimedia security and steganography. Multimedia security and steganography is especially relevant due to the global scale of digital multimedia and the rapid growth of the Internet. Digital watermarking technology can be used to guarantee authenticity and can be applied as proof that the content has not been altered since insertion. Updated techniques and advances in watermarking are explored in this new edition. The combinational spatial and frequency domains watermarking technique provides a new concept of enlarging the embedding capacity of watermarks. The genetic algorithm GA based watermarking technique solves the rounding error problem and provide an efficient embedding approach. Each chapter provides the reader with a fundamental theoretical framework while developing the extensive advanced techniques and considering the essential principles of the digital watermarking and steganographic systems. Several robust algorithms that are presented throughout illustrate the framework and provide assistance and tools in understanding and implementing the fundamental principles.

Security, Steganography, and Watermarking of Multimedia Contents , 2005 *Digital Forensics and Watermarking* Xianfeng Zhao, Yun-Qing Shi, Alessandro Piva, Hyoung

Joong Kim,2021-02-11 This volume constitutes the proceedings of the 19th International Workshop on Digital Forensics and Watermarking IWDW 2020 held in Melbourne VIC Australia in November 2020 The 20 full papers in this volume were carefully reviewed and selected from 43 submissions They cover topics such as novel research development and application of digital watermarking and forensics techniques for multimedia security Digital Forensics and Watermarking Hongxia Wang,Xianfeng Zhao,Yunqing Shi,Hyoung Joong Kim,Alessandro Piva,2020-03-25 The 22 full papers and 12 shorts papers presented in this volume were carefully reviewed and selected from 70 submissions The contributions are covering the following topics deep learning for multimedia security digital forensics and anti forensics digital watermarking information hiding steganography and steganalysis authentication and security Transactions on Data Hiding and Multimedia Security III Yun Q. Shi,2008-06-02 Since the mid 1990s data hiding has been proposed as an enabling technology for securing multimedia communication and is now used in various applications including broadcast monitoring movie fingerprinting steganography video indexing and retrieval and image authentication Data hiding and cryptographic techniques are often combined to complement each other thus triggering the development of a new research field of multimedia security Besides two related disciplines steganalysis and data forensics are increasingly attracting researchers and becoming another new research field of multimedia security This journal LNCS Transactions on Data Hiding and Multimedia Security aims to be a forum for all researchers in these emerging fields publishing both original and archival research results This third issue contains five contributions in the areas of steganography and digital watermarking The first two papers deal with the security of steganographic systems the third paper presents a novel image steganographic scheme Finally this volume includes two papers that focus on digital watermarking and data hiding The fourth paper introduces and analyzes a new covert channel and the fifth contribution analyzes the performance of additive attacks against quantization based data hiding methods **Digital Media Steganography** Mahmoud Hassaballah,2020-06-27 The common use of the Internet and cloud services in transmission of large amounts of data over open networks and insecure channels exposes that private and secret data to serious situations Ensuring the information transmission over the Internet is safe and secure has become crucial consequently information security has become one of the most important issues of human communities because of increased data transmission over social networks Digital Media Steganography Principles Algorithms and Advances covers fundamental theories and algorithms for practical design while providing a comprehensive overview of the most advanced methodologies and modern techniques in the field of steganography The topics covered present a collection of high quality research works written in a simple manner by world renowned leaders in the field dealing with specific research problems It presents the state of the art as well as the most recent trends in digital media steganography Covers fundamental theories and algorithms for practical design which form the basis of modern digital media steganography Provides new theoretical breakthroughs and a number of modern techniques in steganography Presents the latest advances in digital media steganography such as using

deep learning and artificial neural network as well as Quantum Steganography **Digital Watermarking** Anthony T. S. Ho, Yun Q. Shi, Hyo Young Joong Kim, Mauro Barni, 2009-08-06 This book constitutes the refereed proceedings of the 8th International Workshop IWDW 2009 held in Guildford Surrey UK August 24 26 2009 The 25 revised full papers including 4 poster presentations presented together with 3 invited papers were carefully reviewed and selected from 50 submissions The papers are organized in topical sections on robust watermarking video watermarking steganography and steganalysis multimedia watermarking and security protocols as well as image forensics and authentication

Fundamental Computing Forensics for Africa Aamo Iorliam, 2018-06-28 This book presents a general introduction to the computational aspects of forensic science covering the different tools needed for forensic investigations the importance of forensics and biometrics and the use of Benford's law for biometrics and network traffic analysis It specifically focuses on the application of these techniques in Africa and how they can be of benefit in the investigation of crime in Nigeria in particular

Digital Forensics and Watermarking Christian Kraetzer, Yun-Qing Shi, Jana Dittmann, Hyo Young Joong Kim, 2017-08-09 This book constitutes the refereed proceedings of the 16th International Workshop on Digital Forensics and Watermarking IWDW 2017 held in Magdeburg Germany in August 2017 The 30 papers presented in this volume were carefully reviewed and selected from 48 submissions The contributions are covering the state of the art theoretical and practical developments in the fields of digital watermarking steganography and steganalysis forensics and anti forensics visual cryptography and other multimedia related security issues Also included are the papers on two special sessions on biometric image tampering detection and on emerging threats of criminal use of information hiding usage scenarios and detection approaches

Transactions on Data Hiding and Multimedia Security X Yun Q. Shi, 2015-07-07 Since the mid 1990s data hiding has been proposed as an enabling technology for securing multimedia communication and is now used in various applications including broadcast monitoring movie fingerprinting steganography video indexing and retrieval and image authentication Data hiding and cryptographic techniques are often combined to complement each other thus triggering the development of a new research field of multimedia security Besides two related disciplines steganalysis and data forensics are increasingly attracting researchers and becoming another new research field of multimedia security This journal LNCS Transactions on Data Hiding and Multimedia Security aims to be a forum for all researchers in these emerging fields publishing both original and archival research results The six papers included in this issue deal with watermarking security perceptual image hashing infrared hiding steganography and steganalysis

Multimedia Security: Steganography and Digital Watermarking Techniques for Protection of Intellectual Property Lu, Chun-Shien, 2004-07-31 Multimedia security has become a major research topic yielding numerous academic papers in addition to many watermarking related companies In this emerging area there are many challenging research issues that deserve sustained study towards an effective and practical system This book explores the myriad of issues regarding multimedia security including perceptual fidelity analysis image audio and 3D mesh object

watermarking medical watermarking error detection authentication and concealment fingerprinting digital signature and digital right management **Transactions on Data Hiding and Multimedia Security VII** Yun Qing Shi,2012-03-05 Since the mid 1990s data hiding has been proposed as an enabling technology for securing multimedia communication and is now used in various applications including broadcast monitoring movie fingerprinting steganography video indexing and retrieval and image authentication Data hiding and cryptographic techniques are often combined to complement each other thus triggering the development of a new research field of multimedia security Besides two related disciplines steganalysis and data forensics are increasingly attracting researchers and becoming another new research field of multimedia security This journal LNCS Transactions on Data Hiding and Multimedia Security aims to be a forum for all researchers in these emerging fields publishing both original and archival research results The 7 papers included in this issue deal with the following topics protection of digital videos secure watermarking tamper detection and steganography **Transactions on Data Hiding and Multimedia Security VIII** Yun Q. Shi,2012-07-30 Since the mid 1990s data hiding has been proposed as an enabling technology for securing multimedia communication and is now used in various applications including broadcast monitoring movie fingerprinting steganography video indexing and retrieval and image authentication Data hiding and cryptographic techniques are often combined to complement each other thus triggering the development of a new research field of multimedia security Besides two related disciplines steganalysis and data forensics are increasingly attracting researchers and becoming another new research field of multimedia security This journal LNCS Transactions on Data Hiding and Multimedia Security aims to be a forum for all researchers in these emerging fields publishing both original and archival research results This special issue contains five selected papers that were presented at the Workshop on Pattern Recognition for IT Security held in Darmstadt Germany in September 2010 in conjunction with the 32nd Annual Symposium of the German Association for Pattern Recognition DAGM 2010 It demonstrates the broad range of security related topics that utilize graphical data The contributions explore the security and reliability of biometric data the power of machine learning methods to differentiate forged images from originals the effectiveness of modern watermark embedding schemes and the use of information fusion in steganalysis *Security, Forensics, Steganography, and Watermarking of Multimedia Contents X* ,2008 **Transactions on Data Hiding and Multimedia Security VI** Yun Q. Shi,2011-11-09 Since the mid 1990s data hiding has been proposed as an enabling technology for securing multimedia communication and is now used in various applications including broadcast monitoring movie fingerprinting steganography video indexing and retrieval and image authentication Data hiding and cryptographic techniques are often combined to complement each other thus triggering the development of a new research field of multimedia security Besides two related disciplines steganalysis and data forensics are increasingly attracting researchers and becoming another new research field of multimedia security This journal LNCS Transactions on Data Hiding and Multimedia Security aims to be a forum for all researchers in these emerging fields

publishing both original and archival research results This issue consists mainly of a special section on content protection and forensics including four papers The additional paper deals with histogram based image hashing for searching content preserving copies **Multimedia Forensics and Security** Li, Chang-Tsun,2008-07-31 As information technology is rapidly progressing an enormous amount of media can be easily exchanged through Internet and other communication networks Increasing amounts of digital image video and music have created numerous information security issues and is now taken as one of the top research and development agendas for researchers organizations and governments worldwide Multimedia Forensics and Security provides an in depth treatment of advancements in the emerging field of multimedia forensics and security by tackling challenging issues such as digital watermarking for copyright protection digital fingerprinting for transaction tracking and digital camera source identification **Transactions on Data Hiding and Multimedia Security**

IV Yun Q. Shi,2009-07-24 Since the mid 1990s data hiding has been proposed as an enabling technology for securing multimedia communication and is now used in various applications including broadcast monitoring movie fingerprinting steganography video indexing and retrieval and image authentication Data hiding and cryptographic techniques are often combined to complement each other thus triggering the development of a new research field of multimedia security Besides two related disciplines steganalysis and data forensics are increasingly attracting researchers and becoming another new research field of multimedia security This journal LNCS Transactions on Data Hiding and Multimedia Security aims to be a forum for all researchers in these emerging fields publishing both original and archival research results This fourth issue contains five contributions in the area of digital watermarking The first three papers deal with robust watermarking The fourth paper introduces a new least distortion linear gain model for halftone image watermarking and the fifth contribution presents an optimal histogram pair based image reversible data hiding scheme **Transactions on Data Hiding and Multimedia Security I** ,2006-10-28 This inaugural issue of the LNCS Transactions on Data Hiding and Multimedia Security

contains five papers dealing with a wide range of topics related to multimedia security from a survey of problems related to watermark security to an introduction to the concept of Personal Entertainment Domains PED in Digital Rights Management DRM schemes **Crime Prevention Technologies and Applications for Advancing Criminal Investigation** Li, Chang-Tsun, Ho, Anthony T.S.,2012-06-30 The tools of crime constantly evolve and law enforcement and forensic

investigators must understand advanced forensic techniques to ensure that the most complete evidence is brought to trial Paramount also the need for investigators to ensure that evidence adheres to the boundaries of the legal system a place where policy often lags behind new innovations Crime Prevention Technologies and Applications for Advancing Criminal Investigation addresses the use of electronic devices and software for crime prevention investigation and the application of a broad spectrum of sciences to answer questions of interest to the legal system This book fosters a forum for advancing research and development of the theory and practice of digital crime prevention and forensics

The Enigmatic Realm of **Multimedia Security Watermarking Steganography And Forensics**: Unleashing the Language is Inner Magic

In a fast-paced digital era where connections and knowledge intertwine, the enigmatic realm of language reveals its inherent magic. Its capacity to stir emotions, ignite contemplation, and catalyze profound transformations is nothing short of extraordinary. Within the captivating pages of **Multimedia Security Watermarking Steganography And Forensics** a literary masterpiece penned with a renowned author, readers embark on a transformative journey, unlocking the secrets and untapped potential embedded within each word. In this evaluation, we shall explore the book's core themes, assess its distinct writing style, and delve into its lasting effect on the hearts and minds of those that partake in its reading experience.

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Table of Contents Multimedia Security Watermarking Steganography And Forensics

1. Understanding the eBook Multimedia Security Watermarking Steganography And Forensics
 - The Rise of Digital Reading Multimedia Security Watermarking Steganography And Forensics
 - Advantages of eBooks Over Traditional Books
2. Identifying Multimedia Security Watermarking Steganography And Forensics
 - Exploring Different Genres
 - Considering Fiction vs. Non-Fiction
 - Determining Your Reading Goals
3. Choosing the Right eBook Platform
 - Popular eBook Platforms
 - Features to Look for in an Multimedia Security Watermarking Steganography And Forensics
 - User-Friendly Interface
4. Exploring eBook Recommendations from Multimedia Security Watermarking Steganography And Forensics
 - Personalized Recommendations
 - Multimedia Security Watermarking Steganography And Forensics User Reviews and Ratings

- Multimedia Security Watermarking Steganography And Forensics and Bestseller Lists
- 5. Accessing Multimedia Security Watermarking Steganography And Forensics Free and Paid eBooks
 - Multimedia Security Watermarking Steganography And Forensics Public Domain eBooks
 - Multimedia Security Watermarking Steganography And Forensics eBook Subscription Services
 - Multimedia Security Watermarking Steganography And Forensics Budget-Friendly Options
- 6. Navigating Multimedia Security Watermarking Steganography And Forensics eBook Formats
 - ePUB, PDF, MOBI, and More
 - Multimedia Security Watermarking Steganography And Forensics Compatibility with Devices
 - Multimedia Security Watermarking Steganography And Forensics Enhanced eBook Features
- 7. Enhancing Your Reading Experience
 - Adjustable Fonts and Text Sizes of Multimedia Security Watermarking Steganography And Forensics
 - Highlighting and Note-Taking Multimedia Security Watermarking Steganography And Forensics
 - Interactive Elements Multimedia Security Watermarking Steganography And Forensics
- 8. Staying Engaged with Multimedia Security Watermarking Steganography And Forensics
 - Joining Online Reading Communities
 - Participating in Virtual Book Clubs
 - Following Authors and Publishers Multimedia Security Watermarking Steganography And Forensics
- 9. Balancing eBooks and Physical Books Multimedia Security Watermarking Steganography And Forensics
 - Benefits of a Digital Library
 - Creating a Diverse Reading Collection Multimedia Security Watermarking Steganography And Forensics
- 10. Overcoming Reading Challenges
 - Dealing with Digital Eye Strain
 - Minimizing Distractions
 - Managing Screen Time
- 11. Cultivating a Reading Routine Multimedia Security Watermarking Steganography And Forensics
 - Setting Reading Goals Multimedia Security Watermarking Steganography And Forensics
 - Carving Out Dedicated Reading Time
- 12. Sourcing Reliable Information of Multimedia Security Watermarking Steganography And Forensics
 - Fact-Checking eBook Content of Multimedia Security Watermarking Steganography And Forensics
 - Distinguishing Credible Sources

13. Promoting Lifelong Learning
 - Utilizing eBooks for Skill Development
 - Exploring Educational eBooks
14. Embracing eBook Trends
 - Integration of Multimedia Elements
 - Interactive and Gamified eBooks

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thederiver brings down the high frequency of the vco signal tothe range of the reference frequency

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