

HANDBOOK OF DIGITAL FORENSICS OF MULTIMEDIA DATA AND DEVICES

EDITORS
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Handbook Of Digital Forensics Of Multimedia Data And Devices Wiley Ieee

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Handbook of Digital Forensics of Multimedia Data and Devices Anthony T. S. Ho, Shujun Li, 2015-07-24 Digital forensics and multimedia forensics are rapidly growing disciplines whereby electronic information is extracted and interpreted for use in a court of law. These two fields are finding increasing importance in law enforcement and the investigation of cybercrime as the ubiquity of personal computing and the internet becomes ever more apparent. Digital forensics involves investigating computer systems and digital artefacts in general while multimedia forensics is a sub topic of digital forensics focusing on evidence extracted from both normal computer systems and special multimedia devices such as digital cameras. This book focuses on the interface between digital forensics and multimedia forensics bringing two closely related fields of forensic expertise together to identify and understand the current state of the art in digital forensic investigation. Both fields are expertly attended to by contributions from researchers and forensic practitioners specializing in diverse topics such as forensic authentication, forensic triage, forensic photogrammetry, biometric forensics, multimedia device identification and image forgery detection among many others. Key features: Brings digital and multimedia forensics together with contributions from academia, law enforcement and the digital forensics industry for extensive coverage of all the major aspects of digital forensics of multimedia data and devices. Provides comprehensive and authoritative coverage of digital forensics of multimedia data and devices. Offers not only explanations of techniques but also real world and simulated case studies to illustrate how digital and multimedia forensics techniques work. Includes a companion website hosting continually updated supplementary materials ranging from extended and updated coverage of standards to best practice guides, test datasets and more case studies.

Handbook of Digital Forensics of Multimedia Data and Devices, Enhanced E-Book Anthony T. S. Ho, Shujun Li, 2016-05-20 Digital forensics and multimedia forensics are rapidly growing disciplines whereby electronic information is extracted and interpreted for use in a court of law. These two fields are finding increasing importance in law enforcement and the investigation of cybercrime as the ubiquity of personal computing and the internet becomes ever more apparent. Digital forensics involves investigating computer systems and digital artefacts in general while multimedia forensics is a sub topic of digital forensics focusing on evidence extracted from both normal computer systems and special multimedia devices such as digital cameras. This book focuses on the interface between digital forensics and multimedia forensics bringing two closely related fields of forensic expertise together to identify and understand the current state of the art in digital forensic investigation. Both fields are expertly attended to by contributions from researchers and forensic practitioners specializing in diverse topics such as forensic authentication, forensic triage, forensic photogrammetry, biometric forensics, multimedia device identification and image forgery detection among many others. Key features: Brings digital and multimedia forensics together with contributions from academia, law enforcement and the digital forensics industry for extensive coverage of all the major aspects of digital forensics of multimedia data and devices. Provides comprehensive and

authoritative coverage of digital forensics of multimedia data and devices Offers not only explanations of techniques but also real world and simulated case studies to illustrate how digital and multimedia forensics techniques work Includes a companion website hosting continually updated supplementary materials ranging from extended and updated coverage of standards to best practice guides test datasets and more case studies *Advanced Methodologies and Technologies in Digital Marketing and Entrepreneurship* Khosrow-Pour, D.B.A., Mehdi,2018-11-09 As businesses aim to compete internationally they must be apprised of new methods and technologies to improve their digital marketing strategy in order to remain ahead of their competition Trends in entrepreneurship that drive consumer engagement and business initiatives such as social media marketing yields customer retention and positive feedback Advanced Methodologies and Technologies in Digital Marketing and Entrepreneurship provides information on emerging trends in business innovation entrepreneurship and marketing strategies While highlighting challenges such as successful social media interactions and consumer engagement this book explores valuable information within various business environments and industries such as e commerce small and medium enterprises hospitality and tourism management and customer relationship management This book is an ideal source for students marketers social media marketers business managers public relations professionals promotional coordinators economists hospitality industry professionals entrepreneurs and researchers looking for relevant information on new methods in digital marketing and entrepreneurship **Encyclopedia of Information Science and Technology, Fourth Edition** Khosrow-Pour, D.B.A., Mehdi,2017-06-20 In recent years our world has experienced a profound shift and progression in available computing and knowledge sharing innovations These emerging advancements have developed at a rapid pace disseminating into and affecting numerous aspects of contemporary society This has created a pivotal need for an innovative compendium encompassing the latest trends concepts and issues surrounding this relevant discipline area During the past 15 years the Encyclopedia of Information Science and Technology has become recognized as one of the landmark sources of the latest knowledge and discoveries in this discipline The Encyclopedia of Information Science and Technology Fourth Edition is a 10 volume set which includes 705 original and previously unpublished research articles covering a full range of perspectives applications and techniques contributed by thousands of experts and researchers from around the globe This authoritative encyclopedia is an all encompassing well established reference source that is ideally designed to disseminate the most forward thinking and diverse research findings With critical perspectives on the impact of information science management and new technologies in modern settings including but not limited to computer science education healthcare government engineering business and natural and physical sciences it is a pivotal and relevant source of knowledge that will benefit every professional within the field of information science and technology and is an invaluable addition to every academic and corporate library **Digital Forensics in the Era of Artificial Intelligence** Nour Moustafa,2022-07-18 Digital forensics plays a crucial role in identifying analysing and presenting cyber threats as

evidence in a court of law Artificial intelligence particularly machine learning and deep learning enables automation of the digital investigation process This book provides an in depth look at the fundamental and advanced methods in digital forensics It also discusses how machine learning and deep learning algorithms can be used to detect and investigate cybercrimes This book demonstrates digital forensics and cyber investigating techniques with real world applications It examines hard disk analytics and style architectures including Master Boot Record and GUID Partition Table as part of the investigative process It also covers cyberattack analysis in Windows Linux and network systems using virtual machines in real world scenarios Digital Forensics in the Era of Artificial Intelligence will be helpful for those interested in digital forensics and using machine learning techniques in the investigation of cyberattacks and the detection of evidence in cybercrimes

Cross-Media Authentication and Verification: Emerging Research and Opportunities Katsaounidou, Anastasia,Dimoulas, Charalampos,Veglis, Andreas,2018-07-13 As media becomes more readily available in the digital age it also becomes more vulnerable to tampering and manipulation making techniques for verifying reliable news and media sources essential Understanding online technologies role in shaping the media environment allows for insight into the correlations between the rapidly transforming media landscape and its unwanted effect on news and content tampering Cross Media Authentication and Verification Emerging Research and Opportunities is a collection of innovative research on the methods and applications of verifying the newsgathering and publishing process While highlighting topics including human authentication information evaluation and tampered content this book is ideally designed for researchers students publishers and academicians seeking current research on media authenticity and misinformation **Comprehensive**

Healthcare Simulation: Operations, Technology, and Innovative Practice Scott B. Crawford,Lance W. Baily,Stormy M. Monks,2019-07-17 This practical guide provides a focus on the implementation of healthcare simulation operations as well as the type of professional staff required for developing effective programs in this field Though there is no single avenue in which a person pursues the career of a healthcare simulation technology specialist HSTS this book outlines the extensive knowledge and variety of skills one must cultivate to be effective in this role This book begins with an introduction to healthcare simulation including personnel curriculum and physical space Subsequent chapters address eight knowledge skill domains core to the essential aspects of an HSTS To conclude best practices and innovations are provided and the benefits of developing a collaborative relationship with industry stakeholders are discussed Expertly written text throughout the book is supplemented with dozens of high quality color illustrations photographs and tables Written and edited by leaders in the field Comprehensive Healthcare Simulation Operations Technology and Innovative Practice is optimized for a variety of learners including healthcare educators simulation directors as well as those looking to pursue a career in simulation operations as healthcare simulation technology specialists *Multimedia Forensics* Husrev Taha Sencar,Luisa Verdoliva,Nasir

Memon,2022-04-02 This book is open access Media forensics has never been more relevant to societal life Not only media

content represents an ever increasing share of the data traveling on the net and the preferred communications means for most users it has also become integral part of most innovative applications in the digital information ecosystem that serves various sectors of society from the entertainment to journalism to politics Undoubtedly the advances in deep learning and computational imaging contributed significantly to this outcome The underlying technologies that drive this trend however also pose a profound challenge in establishing trust in what we see hear and read and make media content the preferred target of malicious attacks In this new threat landscape powered by innovative imaging technologies and sophisticated tools based on autoencoders and generative adversarial networks this book fills an important gap It presents a comprehensive review of state of the art forensics capabilities that relate to media attribution integrity and authenticity verification and counter forensics Its content is developed to provide practitioners researchers photo and video enthusiasts and students a holistic view of the field

Digital Forensics and Cyber Crime Sanjay Goel,Pavel Gladyshev,Daryl Johnson,Makan Pourzandi,Suryadipta Majumdar,2021-02-06 This book constitutes the refereed proceedings of the 11th International Conference on Digital Forensics and Cyber Crime ICDF2C 2020 held in Boston MA in October 2020 Due to COVID 19 pandemic the conference was held virtually The 11 reviewed full papers and 4 short papers were selected from 35 submissions and are grouped in topical sections on digital forensics cyber physical system Forensics event reconstruction in digital forensics emerging topics in forensics cybersecurity and digital forensics

Digital Forensics and Investigations Jason Sachowski,2018-05-16 Digital forensics has been a discipline of Information Security for decades now Its principles methodologies and techniques have remained consistent despite the evolution of technology and ultimately it can be applied to any form of digital data However within a corporate environment digital forensic professionals are particularly challenged They must maintain the legal admissibility and forensic viability of digital evidence in support of a broad range of different business functions that include incident response electronic discovery ediscovery and ensuring the controls and accountability of such information across networks Digital Forensics and Investigations People Process and Technologies to Defend the Enterprise provides the methodologies and strategies necessary for these key business functions to seamlessly integrate digital forensic capabilities to guarantee the admissibility and integrity of digital evidence In many books the focus on digital evidence is primarily in the technical software and investigative elements of which there are numerous publications What tends to get overlooked are the people and process elements within the organization Taking a step back the book outlines the importance of integrating and accounting for the people process and technology components of digital forensics In essence to establish a holistic paradigm and best practice procedure and policy approach to defending the enterprise This book serves as a roadmap for professionals to successfully integrate an organization s people process and technology with other key business functions in an enterprise s digital forensic capabilities

Implementing Digital Forensic Readiness Jason Sachowski,2016-02-29 Implementing Digital Forensic Readiness From Reactive to Proactive Process shows information

security and digital forensic professionals how to increase operational efficiencies by implementing a pro active approach to digital forensics throughout their organization It demonstrates how digital forensics aligns strategically within an organization s business operations and information security s program This book illustrates how the proper collection preservation and presentation of digital evidence is essential for reducing potential business impact as a result of digital crimes disputes and incidents It also explains how every stage in the digital evidence lifecycle impacts the integrity of data and how to properly manage digital evidence throughout the entire investigation Using a digital forensic readiness approach and preparedness as a business goal the administrative technical and physical elements included throughout this book will enhance the relevance and credibility of digital evidence Learn how to document the available systems and logs as potential digital evidence sources how gap analysis can be used where digital evidence is not sufficient and the importance of monitoring data sources in a timely manner This book offers standard operating procedures to document how an evidence based presentation should be made featuring legal resources for reviewing digital evidence Explores the training needed to ensure competent performance of the handling collecting and preservation of digital evidence Discusses the importance of how long term data storage must take into consideration confidentiality integrity and availability of digital evidence Emphasizes how incidents identified through proactive monitoring can be reviewed in terms of business risk Includes learning aids such as chapter introductions objectives summaries and definitions Advancements in Cybersecurity

Agbotiname Lucky Imoize,Oleksandr Kuznetsov,Oleksandr Lemeshko,Oleksandra Yeremenko,2025-06-26 This book offers a comprehensive exploration of cutting edge research and developments in the field of cybersecurity It presents a curated collection of chapters that reflect the latest in empirical data approximation malware recognition information security technologies and beyond Advancements in Cybersecurity Next Generation Systems and Applications offers readers a broad perspective on the multifaceted challenges and solutions in contemporary cybersecurity through topics ranging from the application of blockchain technology in securing information systems to the development of new cost functions for the iterative generation of cryptographic components The book not only addresses technical aspects but also provides insights into the theoretical frameworks and practical applications that underpin the development of robust cybersecurity systems It explores the optimization of algorithms for generating nonlinear substitutions the application of machine learning models for security evaluation and the implementation of deep learning techniques for detecting sophisticated cyber attacks Through its in depth analysis and forward looking perspectives this book contributes significantly to advancing cybersecurity research and practice paving the way for a safer digital future This book is designed to serve as an essential resource for researchers practitioners policymakers and engineers in the fields of ICT next generation computing and IT security including cryptography AI ML DL cyber resilience network security threat modeling and risk assessment digital forensics secure software development hardware security and human centric security **Digital Forensic Science** Vassil

Roussev,2022-05-31 Digital forensic science or digital forensics is the application of scientific tools and methods to identify collect and analyze digital data artifacts in support of legal proceedings From a more technical perspective it is the process of reconstructing the relevant sequence of events that have led to the currently observable state of a target IT system or digital artifacts Over the last three decades the importance of digital evidence has grown in lockstep with the fast societal adoption of information technology which has resulted in the continuous accumulation of data at an exponential rate Simultaneously there has been a rapid growth in network connectivity and the complexity of IT systems leading to more complex behavior that needs to be investigated The goal of this book is to provide a systematic technical overview of digital forensic techniques primarily from the point of view of computer science This allows us to put the field in the broader perspective of a host of related areas and gain better insight into the computational challenges facing forensics as well as draw inspiration for addressing them This is needed as some of the challenges faced by digital forensics such as cloud computing require qualitatively different approaches the sheer volume of data to be examined also requires new means of processing it

Computer Vision - ECCV 2020 Workshops Adrien Bartoli,Andrea Fusiello,2021-01-30 The 6 volume set comprising the LNCS books 12535 until 12540 constitutes the refereed proceedings of 28 out of the 45 workshops held at the 16th European Conference on Computer Vision ECCV 2020 The conference was planned to take place in Glasgow UK during August 23 28 2020 but changed to a virtual format due to the COVID 19 pandemic The 249 full papers 18 short papers and 21 further contributions included in the workshop proceedings were carefully reviewed and selected from a total of 467 submissions The papers deal with diverse computer vision topics Part V includes The 16th Embedded Vision Workshop Real World Computer Vision from Inputs with Limited Quality RLQ The Bright and Dark Sides of Computer Vision Challenges and Opportunities for Privacy and Security CV COPS 2020 The Visual Object Tracking Challenge Workshop VOT 2020 and Video Turing Test Toward Human Level Video Story Understanding

New Trends in Image Analysis and Processing -- ICIAP 2015 Workshops Vittorio Murino,Enrico Puppo,Diego Sona,Marco Cristani,Carlo Sansone,2015-08-20 This book constitutes the refereed proceedings of seven workshops held at the 18th International Conference on Image Analysis and Processing ICIAP 2015 in Genoa Italy in September 2015 International Workshop on Recent Advances in Digital Security Biometrics and Forensics BioFor 2015 International Workshop on Color in Texture and Material Recognition CTMR 2015 International Workshop on Medical Imaging in Rheumatology Advanced applications for the analysis of inflammation and damage in the rheumatoid Joint RHEUMA 2015 International Workshop on Image Based Smart City Application ISCA 2015 International Workshop on Multimedia Assisted Dietary Management MADiMa 2015 International Workshop on Scene Background Modeling and initialization SBMI 2015 and International Workshop on Image and Video Processing for Quality of Multimedia Experience QoEM 2015

Digital Forensics and Watermarking Bin Ma,Jian Li,Qi Li,2024-04-24 This book constitutes the refereed post proceedings of the 22nd International Workshop on Digital Forensics and Watermarking IWDW 2023 held in

Jinan China during November 25 26 2023 The 22 full papers included in this book were carefully reviewed and selected from 48 submissions The workshop focuses on subjects such as novel research development and application of digital watermarking data hiding and forensic techniques for multimedia security Special Topics in Information Technology Simone Garatti, 2025-03-28 This open access book presents outstanding doctoral dissertations in Information Technology from the Department of Electronics Information and Bioengineering Politecnico di Milano Italy Information technology has always been highly interdisciplinary as many aspects have to be considered in IT systems The doctoral studies program in IT at Politecnico di Milano emphasizes this interdisciplinary nature which is becoming more and more important in recent technological advances in collaborative projects and in the education of young researchers Accordingly the focus of advanced research is on pursuing a rigorous approach to specific research topics starting from a broad background in various areas of Information Technology especially computer science and engineering electronics systems and control and telecommunications Each year more than 50 Ph Ds graduate from the program This book gathers the outcomes of the best theses defended in 2023 24 and selected for the IT Ph D award Each of the authors provides a chapter summarizing his/her findings including an introduction description of methods main achievements and future work on the topic Hence the book provides a cutting edge overview of the latest research trends in information technology at Politecnico di Milano presented in an easy to read format that will also appeal to non specialists **Cyber Crime and Forensic Computing** Gulshan Shrivastava, Deepak Gupta, Kavita Sharma, 2021-09-07 This book presents a comprehensive study of different tools and techniques available to perform network forensics Also various aspects of network forensics are reviewed as well as related technologies and their limitations This helps security practitioners and researchers in better understanding of the problem current solution space and future research scope to detect and investigate various network intrusions against such attacks efficiently Forensic computing is rapidly gaining importance since the amount of crime involving digital systems is steadily increasing Furthermore the area is still underdeveloped and poses many technical and legal challenges The rapid development of the Internet over the past decade appeared to have facilitated an increase in the incidents of online attacks There are many reasons which are motivating the attackers to be fearless in carrying out the attacks For example the speed with which an attack can be carried out the anonymity provided by the medium nature of medium where digital information is stolen without actually removing it increased availability of potential victims and the global impact of the attacks are some of the aspects Forensic analysis is performed at two different levels Computer Forensics and Network Forensics Computer forensics deals with the collection and analysis of data from computer systems networks communication streams and storage media in a manner admissible in a court of law Network forensics deals with the capture recording or analysis of network events in order to discover evidential information about the source of security attacks in a court of law Network forensics is not another term for network security It is an extended phase of network security as the data for forensic analysis are

collected from security products like firewalls and intrusion detection systems. The results of this data analysis are utilized for investigating the attacks. Network forensics generally refers to the collection and analysis of network data such as network traffic, firewall logs, IDS logs, etc. Technically, it is a member of the already existing and expanding field of digital forensics. Analogously, network forensics is defined as the use of scientifically proved techniques to collect, fuse, identify, examine, correlate, analyze, and document digital evidence from multiple active processing and transmitting digital sources for the purpose of uncovering facts related to the planned intent or measured success of unauthorized activities meant to disrupt, corrupt, and/or compromise system components, as well as providing information to assist in response to or recovery from these activities. Network forensics plays a significant role in the security of today's organizations. On the one hand, it helps to learn the details of external attacks, ensuring similar future attacks are thwarted. Additionally, network forensics is essential for investigating insiders' abuses that constitute the second costliest type of attack within organizations. Finally, law enforcement requires network forensics for crimes in which a computer or digital system is either being the target of a crime or being used as a tool in carrying a crime. Network security protects the system against attack, while network forensics focuses on recording evidence of the attack. Network security products are generalized and look for possible harmful behaviors. This monitoring is a continuous process and is performed all through the day. However, network forensics involves post-mortem investigation of the attack and is initiated after crime notification. There are many tools which assist in capturing data transferred over the networks so that an attack or the malicious intent of the intrusions may be investigated. Similarly, various network forensic frameworks are proposed in the literature.

Advances in Digital Forensics VIII Gilbert Peterson, Sujeet Shenoj, 2012-12-09. Digital forensics deals with the acquisition, preservation, examination, analysis, and presentation of electronic evidence. Networked computing, wireless communications, and portable electronic devices have expanded the role of digital forensics beyond traditional computer crime investigations. Practically, every crime now involves some aspect of digital evidence. Digital forensics provides the techniques and tools to articulate this evidence. Digital forensics also has myriad intelligence applications. Furthermore, it has a vital role in information assurance investigations of security breaches, yielding valuable information that can be used to design more secure systems.

Advances in Digital Forensics VIII describes original research results and innovative applications in the discipline of digital forensics. In addition, it highlights some of the major technical and legal issues related to digital evidence and electronic crime investigations. The areas of coverage include themes and issues, forensic techniques, mobile phone forensics, cloud forensics, network forensics, and advanced forensic techniques. This book is the eighth volume in the annual series produced by the International Federation for Information Processing (IFIP) Working Group 11.9 on Digital Forensics, an international community of scientists, engineers, and practitioners dedicated to advancing the state of the art of research and practice in digital forensics. The book contains a selection of twenty-two edited papers from the Eighth Annual IFIP WG 11.9 International Conference on Digital Forensics.

held at the University of Pretoria Pretoria South Africa in the spring of 2012 Advances in Digital Forensics VIII is an important resource for researchers faculty members and graduate students as well as for practitioners and individuals engaged in research and development efforts for the law enforcement and intelligence communities Gilbert Peterson is an Associate Professor of Computer Engineering at the Air Force Institute of Technology Wright Patterson Air Force Base Ohio USA Sujeet Sheno is the F P Walter Professor of Computer Science and a Professor of Chemical Engineering at the University of Tulsa Tulsa Oklahoma USA Cyber Security, Forensics and National Security Vinay Aseri,Sumit Kumar Choudhary,Adarsh Kumar,2025-10-15 The book serves two very important purposes Firstly the concept of vulnerabilities due to cyberattacks in all walks of lives are explained along with how to detect and reduce the risk through digital forensics Secondly the book describes how such threats at a larger scale can threaten national security This book discusses for the first time various dimensions of national security the risks involved due to cyber threats and ultimately the detection and prevention of cyber threats through cyber forensics and cybersecurity architectures This book empowers readers with a deep comprehension of the various cyber threats targeting nations businesses and individuals allowing them to recognize and respond to these threats effectively It provides a comprehensive guide to digital investigation techniques including evidence collection analysis and presentation in a legal context addressing a vital need for cybersecurity professionals and law enforcement The book navigates the complex legal and policy considerations surrounding cybercrime and national security ensuring readers are well versed in compliance and ethical aspects The primary purpose of Cybersecurity Forensics and National Security is to fill a critical gap in the realm of literature on cybersecurity digital forensics and their nexus with national security The need for this resource arises from the escalating threats posed by cyberattacks espionage and other digital crimes which demand a comprehensive understanding of how to investigate respond to and prevent such incidents Features 1 This book consists of content dedicated to national security to assist law enforcement and investigation agencies 2 The book will act as a compendium for undertaking the initiatives for research in securing digital data at the level of national security with the involvement of intelligence agencies 3 The book focuses on real world cases and national security from government agencies law enforcement and digital security firms offering readers valuable insights into practical applications and lessons learned in digital forensics as well as innovative methodologies aimed at enhancing the availability of digital forensics and national security tools and techniques 4 The book explores cutting edge technologies in the field of digital forensics and national security leveraging computational intelligence for enhanced reliability engineering sustainable practices and more

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