

1. Record Nr.	UNINA9910131493803321
Autore	Ho Anthony T. S. <1958->
Titolo	Handbook of digital forensics of multimedia data and devices // Anthony T.S. Ho and Shujun Li
Pubbl/distr/stampa	Hoboken : , : Wiley, , 2015 [Piscataway, New Jersey] : , : IEEE Xplore, , [2015]
ISBN	1-118-70579-3 1-118-70577-7 1-118-70578-5
Descrizione fisica	1 online resource (701 p.)
Collana	Wiley - IEEE
Disciplina	363.25/62
Soggetti	Criminal investigation - Technological innovations Electronics in criminal investigation
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	-- List of Contributors xvii -- Foreword xix -- Preface xxi -- Acknowledgements xxvii -- PART ONE MULTIMEDIA EVIDENCE HANDLING -- 1 Digital Forensics Laboratories in Operation: How Are Multimedia Data and Devices Handled? 3 -- 1.1 Introduction 3 -- 1.2 Digital and Electronics Forensic Service, Metropolitan Police Service, UK 4 -- 1.3 Digital Forensics Team (Including Affiliated AV Team), Surrey Police, UK 17 -- 1.4 Shanghai Stars Digital Forensic Centre, Third Research Institute of China's Ministry of Public Security 23 -- 1.5 Discussions 28 -- 1.6 Summary 32 -- 1.A Appendix: Questionnaires for Interviewing Surrey Police and Shanghai Stars Digital Forensic Centre 32 -- References 34 -- 2 Standards and Best Practices in Digital and Multimedia Forensics 38 -- 2.1 Introduction 38 -- 2.2 Overview 39 -- 2.3 Electronic Evidence and Digital Forensics 48 -- 2.4 Multimedia Evidence and Multimedia Forensics 70 -- 2.5 Digital Forensics Laboratory Accreditation 77 -- 2.6 General Quality Assurance (Management) 79 -- 2.7 Training, Education and Certification on Digital and Multimedia Forensics 81 -- 2.8 Conclusions 84 -- Acknowledgements 86 -- References 86 -- 3 A Machine Learning-Based Approach to Digital Triage 94 -- 3.1 Introduction 94 -- 3.2

Related Work on Digital Triage 96 -- 3.3 A Machine Learning-Based Digital Triage Framework 100 -- 3.4 A Child Pornography Exchange Case Study 110 -- 3.5 Conclusion 128 -- 3.6 Challenges and Future Directions for the Digital Forensics Community 128 -- Acknowledgements 130 -- References 130 -- 4 Forensic Authentication of Digital Audio and Video Files 133 -- 4.1 Introduction 133 -- 4.2 Examination Requests and Submitted Evidence 134 -- 4.3 Laboratory Space 138 -- 4.4 Laboratory Software and Equipment 138 -- 4.5 Audio/Video Authentication Examinations 147 -- 4.6 Preparation of Work Notes and Laboratory Reports 171 -- 4.7 Expert Testimony 172 -- 4.8 Case Examples 173 -- 4.9 Discussion 177 -- References 178 -- PART TWO DIGITAL EVIDENCE EXTRACTION. 5 Photogrammetry in Digital Forensics 185 -- 5.1 Introduction 185 -- 5.2 Different Methods 188 -- 5.3 Measurement Uncertainty 194 -- 5.4 Case Studies 195 -- 5.5 3D Modelling/Scenario Testing 212 -- 5.6 Summary 217 -- References 217 -- 6 Advanced Multimedia File Carving 219 -- 6.1 Introduction 219 -- 6.2 Digital Data Storage 220 -- 6.3 File Carving of Binary Data 225 -- 6.4 Multimedia Data Structures 226 -- 6.5 File Carving of Multimedia Data 232 -- 6.6 Content Identification 241 -- 6.7 File Carving Frameworks 253 -- 6.8 Conclusions 264 -- Acknowledgements 265 -- References 265 -- 7 On Forensic Use of Biometrics 270 -- 7.1 Introduction 270 -- 7.2 Biometrics Performance Metrics 273 -- 7.3 Face: The Natural Means for Human Recognition 274 -- 7.4 Ears as a Means of Forensic Identification 283 -- 7.5 Conclusions 299 -- References 299 -- 8 Multimedia Analytics for Image Collection Forensics 305 -- 8.1 Introduction 305 -- 8.2 Data and Tasks 308 -- 8.3 Multimedia Analysis 309 -- 8.4 Visual Analytics Processes 312 -- 8.5 ChronoBrowser 313 -- 8.6 MediaTable 320 -- 8.7 An Example Scenario 323 -- 8.8 Future Outlook 325 -- References 326 -- PART THREE MULTIMEDIA DEVICE AND SOURCE FORENSICS -- 9 Forensic Camera Model Identification 331 -- 9.1 Introduction 331 -- 9.2 Forensic Source Identification 333 -- 9.3 Digital Camera Model Identification 337 -- 9.4 Benchmarking Camera Model Identification Algorithms 339 -- 9.5 Model-Specific Characteristics of Digital Camera Components 341 -- 9.6 Black Box Camera Model Identification 351 -- 9.7 Camera Model Identification in Open Sets 364 -- 9.8 Model-Specific Characteristics in Device-Level Identification 366 -- 9.9 Open Challenges Towards Practical Applications 368 -- References 370 -- 10 Printer and Scanner Forensics 375 -- 10.1 Introduction 375 -- 10.2 Printer Forensics 379 -- 10.3 Scanner Forensics 386 -- 10.4 Photocopier Identification 389 -- 10.5 Forgery Detection for Printed and Scanned Documents 391 -- 10.6 Sample Algorithms with Case Studies 396. -- 10.7 Open Problems and Challenges 406 -- 10.8 Conclusions 408 -- Acknowledgements 408 -- References 408 -- 11 Microphone Forensics 411 -- 11.1 Introduction 411 -- 11.2 Pattern Recognition for Microphone Forensics 414 -- 11.3 Guidelines for Microphone Registration 421 -- 11.4 Case Studies 423 -- 11.5 Chapter Summary 435 -- Acknowledgements 436 -- References 437 -- 12 Forensic Identification of Printed Documents 442 -- 12.1 Introduction 442 -- 12.2 Special Materials 449 -- 12.3 Substrate Forensics 450 -- 12.4 Print Forensics 455 -- 12.5 Real World Example: Currency Protection 473 -- 12.6 Summary and Ecosystem Considerations 475 -- References 478 -- PART FOUR MULTIMEDIA CONTENT FORENSICS -- 13 Digital Image Forensics with Statistical Analysis 483 -- 13.1 Introduction 483 -- 13.2 Detecting Region Duplication 488 -- 13.3 Exposing Splicing Forgery 500 -- 13.4 Case Studies 508 -- 13.5 Other Applications 512 -- 13.6 Summary 515 -- References 517 -- 14

Camera-Based Image Forgery Detection 522 -- 14.1 Introduction 522 -- 14.2 Camera Structure 524 -- 14.3 Camera-Based Forgery Detection Methods 535 -- 14.4 Forgery Detection Based on PFA: A Case Study 548 -- 14.5 Conclusion 564 -- References 565 -- 15 Image and Video Processing History Recovery 572 -- 15.1 Introduction 572 -- 15.2 Coding Artefacts 573 -- 15.3 Editing Artefacts 586 -- 15.4 Estimation of Processing Parameters 590 -- 15.5 Case Studies 601 -- 15.6 Conclusions 605 -- References 607 -- 16 Anti-Forensics of Multimedia Data and Countermeasures 612 -- 16.1 Introduction 612 -- 16.2 Anti-forensic Approaches Proposed in the Literature 613 -- 16.3 Case Study: JPEG Image Forensics 623 -- 16.4 Trade-off between Forensics and Anti-forensics 644 -- 16.5 Conclusions 647 -- References 647 -- Index 653.

Sommario/riassunto

"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"--
