Digital Forensics for the Health Sciences: Applications in Practice and Research

Andriani Daskalaki (Max Planck Institute for Molecular Genetics, Germany)

Digital forensics deals with the acquisition, preservation, analysis and presentation of electronic data. The detailed documentation and analysis of human data with 3D-imaging and processing techniques has led to qualitative improvements in forensic pathologic investigation and documentation.

Digital Forensics for the Health Sciences: Applications in Practice and Research discusses current applications of digital forensics in health sciences as well as the latest research in this area. This reference work covers basic concepts, best practices, common techniques, investigative challenges and, most importantly, examines the major limitations of current tools and discusses approaches that may help investigators deal with the ever-increasing size and complexity of forensic targets.

Topics Covered:
- Automating human identification
- Dental age assessment of children and adults
- Digital forensics best practices
- Digitized medical images
- Facial reconstruction
- Forensic anthropology
- Forensic odontology
- Forensics statistics
- Machine learning for clinical data processing
- Vertebral morphometry in forensics

Print: US $245.00  |  Perpetual: US $365.00  |  Print + Perpetual: US $490.00

Market: This premier publication is essential for all academic and research library reference collections. It is a crucial tool for academicians, researchers, and practitioners and is ideal for classroom use.

Andriani Daskalaki presently works in the field of molecular medicine and bioinformatics at the Max Planck Institute for Molecular Genetics in Berlin. She completed her PhD in 2002 on working in the applications of photodynamic therapy in the area of oral medicine from the Free University of Berlin. She received a two-year DAAD scholarship (1996-1998) for her research in the field of PDT. Dr. Daskalaki received a MS in Medical Informatics from TFH Berlin with her work in “Development of a documentation software for robot-assisted intraoral operations” and a MS degree in bioinformatics with her work in “Variance analysis of multifactor models in gene expression experiments with application to the identification of genetic markers for hypertension.” She received a poster prize for her participation in the International Photodynamic Association Meeting in Nantes. She is the editor of the Handbook of Research on Systems Biology Applications in Medicine and has presented many oral presentations at national and international meetings. She is a founding member and committee member of the Greek Dental Laser Association. Her research interest areas include systems biology, PDT, and laser applications in dentistry.
Order Your Copy Today!

Name: ____________________________________________

Organization: _______________________________________

Address: ___________________________________________

City, State, Zip: _______________________________________

Country: ___________________________________________

Tel: _________________________________________________

Fax: _________________________________________________

E-mail: ______________________________________________

☐ Enclosed is check payable to IGI Global in US Dollars, drawn on a US-based bank

☐ Credit Card ☐ Mastercard ☐ Visa ☐ Am. Express

3 or 4 Digit Security Code: _____________________________

Name on Card: _______________________________________

Account #: __________________________________________

Expiration Date: ________________________________

Section 1: Digital Forensics Best Practices in Medicine

Chapter 1
Forensic Anthropology:
Ubelaker Douglas H. (Smithsonian Institution, USA)
Grossman Julia A. (Smithsonian Institution, USA)

Chapter 2
Laser Scanning Confocal Imaging of Forensic Samples and Their 3D Visualization
Salih Anya (University Western Sydney, Australia)

Chapter 3
Data Hiding in Digitized Medical Images:
Raval Mehtal S. (Dhirubhai Ambani Institute of Information and Communication Technology, India)

Chapter 4
Vertebral Morphometry in Forensics
Guglielmi Giuseppe (University of Foggia, Italy & Scientific Institute Hospital, Italy)
D’Errico Stefano (University of Foggia, Italy)
Pomara Cristoforo (University of Foggia, Italy)
Fineschi Vittorio (University of Foggia, Italy)

Chapter 5
Facial Reconstruction as a Regression Problem
Berar Maxime (Université de Rosen, France)
Tilotta Françoise (Université Paris Descartes, France)
Glaunès Joan A. (Université Paris Descartes, France)
Rozenhölzl Yves (Université Paris Descartes, France)
Devignes Michel (GIPSA-LAB, France)
Bucki Marek (Laboratoire TIMC-IMAG, France)
Payan Yohan (Laboratoire TIMC-IMAG, France)

Section 2: Basic Research: A Bridge to Digital Forensics

Chapter 6
Monitoring the Transcriptome
Arhondakis Stilianos (Biomedical Research Foundation of the Academy of Athens, Greece)
Tsiliki Georgia (Biomedical Research Foundation of the Academy of Athens, Greece)
Kossida Sophia (Biomedical Research Foundation of the Academy of Athens, Greece)

Chapter 7
Resolving Sample Traces in Complex Mixtures with Microarray Analyses
Lambrou George I. (University of Athens, Greece)
Kouloutris Eleftheria (University of Athens, Greece)
Adamaki Maria (University of Athens, Greece)
Moschovi Maria (University of Athens, Greece)

Chapter 8
Predictive Dynamic Modelling: MicroRNAs Role in Complex Networks
Nikolova Elena V. (Bulgarian Academy of Sciences, Bulgaria)
Herwig Ralf (Max Planck Institute for Molecular Genetics, Germany)
Nikolov Svetoslav G. (Bulgarian Academy of Sciences, Bulgaria)
Petrov Valko G. (Bulgarian Academy of Sciences, Bulgaria)

Section 3: Digital Forensics Applications in Dentistry

Chapter 10
Digital Applications in Forensic Odontology
Barsley Robert E. (American Board of Forensic Odontology, Inc.)
Senn David R. (American Board of Forensic Odontology, Inc.)
David Thomas J. (American Board of Forensic Odontology, Inc.)
Wright Franklin D. (American Board of Forensic Odontology, Inc.)
Golden Gregory S. (American Board of Forensic Odontology, Inc.)

Chapter 11
Dental Age Assessment (DAA) of Children and Emerging Adults:
Roberts Graham J. (King’s College London Dental Institute, UK)
Petrie Arica (UCL Eastman Dental Institute, UK)

Chapter 12
Automating Human Identification Using Dental X-Ray Radiographs
Nomir Omaima (University of Mansoura, Egypt)
Abdel Motaleb Mohamed (University of Miami, USA)

Chapter 13
Left-Right Asymmetries and other Common Anatomical Variants of Temporomandibular Articular Surfaces
Scaglioni Aldo (Vrije Universiteit Brussel, Belgium)
Van Roy Peter (Vrije Universiteit Brussel, Belgium)
Proyn Steven (Vrije Universiteit Brussel, Belgium & Haute École Paul Henri Spaak, Belgium)
Tresignie Jonathan (Vrije Universiteit Brussel, Belgium)
Clarys Jan Pieter (Vrije Universiteit Brussel, Belgium)

Chapter 14
Machine Learning for Clinical Data Processing
Li Guo-Zheng (Tongji University, China)