

A Survey Digital Image Watermarking Techniques Sersc

This volume constitutes the first of three parts of the refereed proceedings of the First International Conference on Computer Science and Information Technology, CCSIT 2010, held in Bangalore, India, in January 2011. The 59 revised full papers presented in this volume were carefully reviewed and selected. The papers are organized in topical sections on distributed and parallel systems and algorithms; DSP, image processing, pattern recognition, and multimedia; software engineering; database and data Mining; as well as soft computing, such as AI, neural networks, fuzzy systems, etc.

This book presents the proceedings of the 6th International Conference on Advanced Intelligent Systems and Informatics 2020 (AIS2020), which took place in Cairo, Egypt, from October 19 to 21, 2020. This international and interdisciplinary conference, which highlighted essential research and developments in the fields of informatics and intelligent systems, was organized by the Scientific Research Group in Egypt (SRGE). The book is divided into several sections, covering the following topics: Intelligent Systems, Deep Learning Technology, Document and Sentiment Analysis, Blockchain and Cyber Physical System, Health Informatics and AI against COVID-19, Data Mining, Power and Control Systems, Business Intelligence, Social Media and Digital Transformation, Robotic, Control Design, and Smart Systems.

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.

Considered one of the most innovative research directions, computational intelligence (CI) embraces techniques that use global search optimization, machine learning, approximate reasoning, and connectionist systems to develop efficient, robust, and easy-to-use solutions amidst multiple decision variables, complex constraints, and tumultuous environments. CI techniques involve a combination of learning, adaptation, and evolution used for intelligent applications. Computational Intelligence Paradigms for Optimization Problems Using MATLAB®/ Simulink® explores the performance of CI in terms of knowledge representation, adaptability, optimality, and processing speed for different real-world optimization problems. Focusing on the practical implementation of CI techniques, this book: Discusses the role of CI paradigms in engineering applications such as unit commitment and economic load dispatch, harmonic reduction, load frequency control and automatic voltage regulation, job shop scheduling, multidepot vehicle routing, and digital image watermarking Explains the impact of CI on power systems, control systems, industrial automation, and image processing through the above-mentioned applications Shows how to apply CI algorithms to constraint-based optimization problems using MATLAB® m-files and Simulink® models Includes experimental

analyses and results of test systems Computational Intelligence Paradigms for Optimization Problems Using MATLAB®/ Simulink® provides a valuable reference for industry professionals and advanced undergraduate, postgraduate, and research students.

The International Conference on “Computational Intelligence in Data Mining” (ICCIDM), after three successful versions, has reached to its fourth version with a lot of aspiration. The best selected conference papers are reviewed and compiled to form this volume. The proceedings discusses the latest solutions, scientific results and methods in solving intriguing problems in the fields of data mining, computational intelligence, big data analytics, and soft computing. The volume presents a sneak preview into the strengths and weakness of trending applications and research findings in the field of computational intelligence and data mining along with related field.

This book constitutes the refereed proceedings of the 17th International Conference on Advanced Concepts for Intelligent Vision Systems, ACIVS 2016, held in Lecce, Italy, in October 2016. The 64 revised full papers presented in this volume were carefully selected from 137 submissions. They deal with classical low-level image processing techniques; image and video compression; 3D; security and forensics; and evaluation methodologies.

The International Conference on Signals, Systems and Automation (ICSSA 2011) aims to spread awareness in the research and academic community regarding cutting-edge technological advancements revolutionizing the world. The main emphasis of this conference is on dissemination of information, experience, and research results on the current topics of interest through in-depth discussions and participation of researchers from all over the world. The objective is to provide a platform to scientists, research scholars, and industrialists for interacting and exchanging ideas in a number of research areas. This will facilitate communication among researchers in different fields of Electronics and Communication Engineering. The International Conference on Intelligent System and Data Processing (ICISD 2011) is organized to address various issues that will foster the creation of intelligent solutions in the future. The primary goal of the conference is to bring together worldwide leading researchers, developers, practitioners, and educators interested in advancing the state of the art in computational intelligence and data processing for exchanging knowledge that encompasses a broad range of disciplines among various distinct communities. Another goal is to promote scientific information interchange between researchers, developers, engineers, students, and practitioners working in India and abroad.

This book gathers the proceedings of the International Conference on Advanced Information Technology, Services and Systems (AIT2S-18), which was held in Mohammedia, Morocco on October 17–18, 2018. Presenting the latest research in the fields of Modern Information Engineering Concepts and Communication Systems, the book will also be of interest to those working in emerging fields such as Advances in Networking and Sensor Networks, Advances in Software Engineering, Multimedia Systems, E-learning, Big Data, Intelligent Information Systems and Advances in Natural Language Processing.

Provides original material concerned with all aspects of information resources management, managerial and organizational

applications, as well as implications of information technology.

This informative, new resource presents the first comprehensive treatment of silicon-germanium heterojunction bipolar transistors (SiGe HBTs). It offers you a complete, from-the-ground-up understanding of SiGe HBT devices and technology, from a very broad perspective. The book covers motivation, history, materials, fabrication, device physics, operational principles, and circuit-level properties associated with this new cutting-edge semiconductor device technology. Including over 400 equations and more than 300 illustrations, this hands-on reference shows you in clear and concise language how to design, simulate, fabricate, and measure a SiGe HBT.

In recent years, libraries have embraced new technologies that organize and store a variety of digital information, such as multimedia databases, digital medical images, and content-based images. *Modern Library Technologies for Data Storage, Retrieval, and Use* highlights new features of digital library technology in order to educate the database community. By contributing research from case studies on the emerging technology use in libraries, this book is essential for academics and scientists interested in the efforts to understand the applications of data acquisition, retrieval and storage.

This book constitutes the refereed post-conference proceedings of the 6th International Conference on Advancement of Science and Technology, ICAST 2018, which took place in Bahir Dar, Ethiopia, in October 2018. The 47 revised full papers were carefully reviewed and selected from 71 submissions. The papers present economic and technologic developments in modern societies in five tracks: agro-processing industries for sustainable development, water resources development for the shared vision in blue Nile basin, IT and computer technology innovation, recent advances in electrical and computer engineering, progresses in product design and system optimization.

Cyber-attacks are rapidly becoming one of the most prevalent issues globally, and as they continue to escalate, it is imperative to explore new approaches and technologies that help ensure the security of the online community. Beyond cyber-attacks, personal information is now routinely and exclusively housed in cloud-based systems. The rising use of information technologies requires stronger information security and system procedures to reduce the risk of information breaches. *Advanced Methodologies and Technologies in System Security, Information Privacy, and Forensics* presents emerging research and methods on preventing information breaches and further securing system networks. While highlighting the rising concerns in information privacy and system security, this book explores the cutting-edge methods combatting digital risks and cyber threats. This book is an important resource for information technology professionals, cybercrime researchers, network analysts, government agencies, business professionals, academicians, and practitioners seeking the most up-to-date information and methodologies on cybercrime, digital terrorism, network security, and information technology ethics.

This volume constitutes the refereed proceedings of the International Conference on Digital Enterprise and Information Systems, held in London during July 20 - 22, 2011. The 70 revised full papers presented were carefully reviewed and selected. They are organized in topical sections on cryptography and data protection, embedded systems and software, information technology

management, e-business applications and software, critical computing and storage, distributed and parallel applications, digital management products, image processing, digital enterprises, XML-based languages, digital libraries, and data mining.

This book presents a compilation of current trends, technologies, and challenges in connection with Big Data. Many fields of science and engineering are data-driven, or generate huge amounts of data that are ripe for the picking. There are now more sources of data than ever before, and more means of capturing data. At the same time, the sheer volume and complexity of the data have sparked new developments, where many Big Data problems require new solutions. Given its scope, the book offers a valuable reference guide for all graduate students, researchers, and scientists interested in exploring the potential of Big Data applications.

This book presents the papers included in the proceedings of the 5th International Conference of Reliable Information and Communication Technology 2020 (IRICT 2020) that was held virtually on December 21-22, 2020. The main theme of the book is Innovative Systems for Intelligent Health Informatics. A total of 140 papers were submitted to the conference, but only 111 papers were published in this book. The book presents several hot research topics which include health informatics, bioinformatics, information retrieval, artificial intelligence, soft computing, data science, big data analytics, Internet of things (IoT), intelligent communication systems, information security, information systems, and software engineering. .

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.

This book constitutes the thoroughly refereed post-conference proceedings of the 7th International Workshop on Digital Watermarking, IWDW 2008, held in Busan, Korea, in November 2008. The 36 regular papers included in the volume

were carefully reviewed and selected from 62 submissions. Areas of interest to the conference are mathematical modeling of embedding and detection; information theoretic, stochastic aspects of data hiding; security issues, including attacks and counter-attacks; combination of data hiding and cryptography; optimum watermark detection and reliable recovery; estimation of watermark capacity; channel coding techniques for watermarking; large-scale experimental tests and benchmarking; new statistical and perceptual models of content; reversible data hiding; data hiding in special media; data hiding and authentication; steganography and steganalysis; data forensics; copyright protection, DRM, and forensic watermarking; and visual cryptography.

"This reference is a comprehensive collection of recent case studies, theories, research on digital rights management, and its place in the world today"--

This book highlights practical quantum key distribution systems and research on the implementations of next-generation quantum communication, as well as photonic quantum device technologies. It discusses how the advances in quantum computing and quantum physics have allowed the building, launching and deploying of space exploration systems that are capable of more and more as they become smaller and lighter. It also presents theoretical and experimental research on the potential and limitations of secure communication and computation with quantum devices, and explores how security can be preserved in the presence of a quantum computer, and how to achieve long-distance quantum communication. The development of a real quantum computer is still in the early stages, but a number of research groups have investigated the theoretical possibilities of such computers.

Data mining analysis techniques have undergone significant developments in recent years. This has led to improved uses throughout numerous functions and applications. Intelligent Multidimensional Data Clustering and Analysis is an authoritative reference source for the latest scholarly research on the advantages and challenges presented by the use of cluster analysis techniques. Highlighting theoretical foundations, computing paradigms, and real-world applications, this book is ideally designed for researchers, practitioners, upper-level students, and professionals interested in the latest developments in cluster analysis for large data sets.

Digital Image Watermarking Theoretical and Computational Advances CRC Press

Robotics and autonomous systems can aid disabled individuals in daily living or make a workplace more productive, but these tools are only as effective as the technology behind them. Robotic systems must be able to accurately identify and act upon elements in their environment to be effective in performing their duties. Innovative Research in Attention Modeling and Computer Vision Applications explores the latest research in image processing and pattern recognition for use in robotic real-time cryptography and surveillance applications. This book provides researchers, students,

academicians, software designers, and application developers with next-generation insight into the use of computer vision technologies in a variety of industries and endeavors. This premier reference work includes chapters on topics ranging from biometric and facial recognition technologies, to digital image and video watermarking, among many others. This handbook is organized under three major parts. The first part of this handbook deals with multimedia security for emerging applications. The chapters include basic concepts of multimedia tools and applications, biological and behavioral biometrics, effective multimedia encryption and secure watermarking techniques for emerging applications, an adaptive face identification approach for android mobile devices, and multimedia using chaotic and perceptual hashing function. The second part of this handbook focuses on multimedia processing for various potential applications. The chapter includes a detail survey of image processing based automated glaucoma detection techniques and role of de-noising, recent study of dictionary learning based image reconstruction techniques for analyzing the big medical data, brief introduction of quantum image processing and it applications, a segmentation-less efficient Alzheimer detection approach, object recognition, image enhancements and de-noising techniques for emerging applications, improved performance of image compression approach, and automated detection of eye related diseases using digital image processing. The third part of this handbook introduces multimedia applications. The chapter includes the extensive survey on the role of multimedia in medicine and multimedia forensics classification, a finger based authentication system for e-health security, analysis of recently developed deep learning techniques for emotion and activity recognition. Further, the book introduce a case study on change of ECG according to time for user identification, role of multimedia in big data, cloud computing, the Internet of things (IoT) and blockchain environment in detail for real life applications. This handbook targets researchers, policy makers, programmers and industry professionals in creating new knowledge for developing efficient techniques/framework for multimedia applications. Advanced level students studying computer science, specifically security and multimedia will find this book useful as a reference.

This book covers newly developed and novel Steganography techniques and algorithms. The book outlines techniques to provide security to a variety of applications using Steganography, with the goal of both hindering an adversary from decoding a hidden message, and also preventing an adversary from suspecting the existence of covert communications. The book looks into applying these newly designed and improved algorithms to provide a new and efficient Steganographic system, called Characteristic Region-Based Image Steganography (CR-BIS). The algorithms combine both the robustness of the Speeded-Up Robust Features technique (SURF) and Discrete Wavelet Transform (DWT) to achieve characteristic region Steganography synchronization. The book also touches on how to avoid hiding data in the whole image by dynamically selecting characteristic regions for the process of embedding. Applies and discusses innovative techniques for hiding text in a digital image file or even using it as a key to the

encryption; Provides a variety of methods to achieve characteristic region Steganography synchronization; Shows how Steganography improves upon cryptography by using obscurity features.

This book constitutes the thoroughly refereed proceedings of the 20th IAPR International Conference on Discrete Geometry for Computer Imagery, DGCI 2017, held in Vienna, Austria, in September 2017. The 28 revised full papers presented together with 3 invited talks were carefully selected from 36 submissions. The papers are organized in topical sections on geometric transforms; discrete tomography; discrete modeling and visualization; morphological analysis; discrete shape representation, recognition and analysis; discrete and combinatorial topology; discrete models and tools; models for discrete geometry.

This book constitutes the refereed proceedings of the 5th International Workshop on Digital Watermarking Secure Data Management, IWDW 2006, held in Jeju Island, Korea in November 2006. The 34 revised full papers presented together with 3 invited lectures cover both theoretical and practical issues in digital watermarking.

This book constitutes the refereed proceedings of the First International Conference on Digital Image Processing and Pattern Recognition, DPPR 2011, held in Tirunelveli, India, in September 2011. The 48 revised full papers were carefully reviewed and selected from about 400 submissions. The conference brought together leading researchers, engineers and scientists in the domain of Digital Image Processing and Pattern Recognition. The papers cover all theoretical and practical aspects of the field and present new advances and current research results in two tracks, namely: digital image processing and pattern recognition, and computer science, engineering and information technology.

The field of SMART technologies is an interdependent discipline. It involves the latest burning issues ranging from machine learning, cloud computing, optimisations, modelling techniques, Internet of Things, data analytics, and Smart Grids among others, that are all new fields. It is an applied and multi-disciplinary subject with a focus on Specific, Measurable, Achievable, Realistic & Timely system operations combined with Machine intelligence & Real-Time computing. It is not possible for any one person to comprehensively cover all aspects relevant to SMART Computing in a limited-extent work. Therefore, these conference proceedings address various issues through the deliberations by distinguished Professors and researchers. The SMARTCOM 2020 proceedings contain tracks dedicated to different areas of smart technologies such as Smart System and Future Internet, Machine Intelligence and Data Science, Real-Time and VLSI Systems, Communication and Automation Systems. The proceedings can be used as an advanced reference for research and for courses in smart technologies taught at graduate level. A comprehensive review of the most recent applications of intelligent multi-modal data processing Intelligent Multi-Modal Data Processing contains a review of the most recent applications of data processing. The Editors and contributors – noted experts on the topic – offer a review of the new and challenging areas of multimedia data processing as well as state-of-the-art algorithms to solve the problems in an intelligent manner. The text provides a clear understanding of the real-life implementation of different statistical theories and explains how to implement various statistical theories. Intelligent Multi-Modal Data Processing is an authoritative guide for developing innovative research ideas for interdisciplinary research practices. Designed as a practical

resource, the book contains tables to compare statistical analysis results of a novel technique to that of the state-of-the-art techniques and illustrations in the form of algorithms to establish a pre-processing and/or post-processing technique for model building. The book also contains images that show the efficiency of the algorithm on standard data set. This important book: Includes an in-depth analysis of the state-of-the-art applications of signal and data processing Contains contributions from noted experts in the field Offers information on hybrid differential evolution for optimal multilevel image thresholding Presents a fuzzy decision based multi-objective evolutionary method for video summarisation Written for students of technology and management, computer scientists and professionals in information technology, Intelligent Multi-Modal Data Processing brings together in one volume the range of multi-modal data processing.

This book discusses blind investigation and recovery of digital evidence left behind on digital devices, primarily for the purpose of tracing cybercrime sources and criminals. It presents an overview of the challenges of digital image forensics, with a specific focus on two of the most common forensic problems. The first part of the book addresses image source investigation, which involves mapping an image back to its camera source to facilitate investigating and tracing the source of a crime. The second part of the book focuses on image-forgery detection, primarily focusing on “copy-move forgery” in digital images, and presenting effective solutions to copy-move forgery detection with an emphasis on additional related challenges such as blur-invariance, similar genuine object identification, etc. The book concludes with future research directions, including counter forensics. With the necessary mathematical information in every chapter, the book serves as a useful reference resource for researchers and professionals alike. In addition, it can also be used as a supplementary text for upper-undergraduate and graduate-level courses on “Digital Image Processing”, “Information Security”, “Machine Learning”, “Computer Vision” and “Multimedia Security and Forensics”.

The Book presents an overview of newly developed watermarking techniques in various independent and hybrid domains Covers the basics of digital watermarking, its types, domain in which it is implemented and the application of machine learning algorithms onto digital watermarking Reviews hardware implementation of watermarking Discusses optimization problems and solutions in watermarking with a special focus on bio-inspired algorithms Includes a case study along with its MATLAB code and simulation results

"This book introduces readers to state-of-art research in multimedia watermarking in the different disciplines of watermarking, addressing the different aspects of advanced watermarking research; modeling and theoretical analysis, advanced embedding and extraction techniques, software and hardware implementations, and performance evaluations of watermarking systems"--Provided by publisher.

This book contains a selection of refereed and revised papers of Intelligent Informatics Track originally presented at the third International Symposium on Intelligent Informatics (ISI-2014), September 24-27, 2014, Delhi, India. The papers selected for this Track cover several intelligent informatics and related topics including signal processing, pattern recognition, image processing data mining and their applications. This book presents medical image watermarking techniques and algorithms for telemedicine and other emerging applications. This book emphasizes on medical image watermarking to ensure the authenticity of transmitted medical information. It begins with an introduction of

digital watermarking, important characteristics, novel applications, different watermarking attacks and standard benchmark tools. This book also covers spatial and transform domain medical image watermarking techniques and their merits and limitations. The authors have developed improved/novel watermarking techniques for telemedicine applications that offer higher robustness, better perceptual quality and increased embedding capacity and secure watermark. The suggested methods may find potential applications in the prevention of patient identity theft and health data management issues which is a growing concern in telemedicine applications. This book provides a sound platform for understanding the medical image watermarking paradigm for researchers in the field and advanced-level students. Industry professionals working in this field, as well as other emerging applications demanding robust and secure watermarking will find this book useful as a reference.

This book comprehensively reviews the various automated and semi-automated signal and image processing techniques, as well as deep-learning-based image analysis techniques, used in healthcare diagnostics. It highlights a range of data pre-processing methods used in signal processing for effective data mining in remote healthcare, and discusses pre-processing using filter techniques, noise removal, and contrast-enhanced methods for improving image quality. The book discusses the status quo of artificial intelligence in medical applications, as well as its future. Further, it offers a glimpse of feature extraction methods for reducing dimensionality and extracting discriminatory information hidden in biomedical signals. Given its scope, the book is intended for academics, researchers and practitioners interested in the latest real-world technological innovations.

The International Conference on Systems Science 2013 (ICSS 2013) was the 18th event of the series of international scientific conferences for researchers and practitioners in the fields of systems science and systems engineering. The conference took place in Wroclaw, Poland during September 10-12, 2013 and was organized by Wroclaw University of Technology and co-organized by: Committee of Automatics and Robotics of Polish Academy of Sciences, Committee of Computer Science of Polish Academy of Sciences and Polish Section of IEEE. The papers included in the proceedings cover the following topics: Control Theory, Databases and Data Mining, Image and Signal Processing, Machine Learning, Modeling and Simulation, Operational Research, Service Science, Time series and System Identification. The accepted and presented papers highlight new trends and challenges in systems science and systems engineering.

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