

Computer And Machine Vision 4th Edition Elsevier

Both pattern recognition and computer vision have experienced rapid progress in the last twenty-five years. This book provides the latest advances on pattern recognition and computer vision along with their many applications. It features articles written by renowned leaders in the field while topics are presented in readable form to a wide range of readers. The book is divided into five parts: basic methods in pattern recognition, basic methods in computer vision and image processing, recognition applications, life science and human identification, and systems and technology. There are eight new chapters on the latest developments in life sciences using pattern recognition as well as two new chapters on pattern recognition in remote sensing.

Handbook of Image Processing and Computer Vision Volume 2: From Image to Pattern Springer Nature

Machine Vision Inspection Systems (MVIS) is a multidisciplinary research field that emphasizes image processing, machine vision and, pattern recognition for industrial applications. Inspection techniques are generally used in destructive and non-destructive evaluation industry. Now a day's the current research on machine inspection gained more popularity among various researchers, because the manual assessment of the inspection may fail and turn into false assessment due to a large number of examining while inspection process. This volume 2 covers machine learning-based approaches in MVIS applications and it can be employed to a wide diversity of problems particularly in Non-Destructive testing (NDT), presence/absence detection, defect/fault detection (weld, textile, tiles, wood, etc.), automated vision test & measurement, pattern matching, optical character recognition & verification (OCR/OCV), natural language processing, medical diagnosis, etc. This edited book is designed to address various aspects of recent methodologies, concepts, and research plan out to the readers for giving more depth insights for perusing research on machine vision using machine learning-based approaches.

This book provides a comprehensive overview of the key technologies and applications related to new cameras that have brought 3D data acquisition to the mass market. It covers both the theoretical principles behind the acquisition devices and the practical implementation aspects of the computer vision algorithms needed for the various applications. Real data examples are used in order to show the performances of the various algorithms. The performance and limitations of the depth camera technology are explored, along with an extensive review of the most effective methods for addressing challenges in common applications. Applications covered in specific detail include scene segmentation, 3D scene reconstruction, human pose estimation and tracking and gesture recognition. This book offers students, practitioners and researchers the tools necessary to explore the potential uses of depth data in light of the expanding number of devices available for sale. It explores the impact of these devices on the rapidly growing field of depth-based computer vision.

This book contains high-quality peer-reviewed papers of the International Conference on Big Data, Machine Learning and their Applications (ICBMA 2019) held at Motilal Nehru National Institute of Technology Allahabad, Prayagraj, India, during 29–31 May 2020. The book provides significant contributions in a structured way so that prospective readers can understand how these techniques are used in finding solutions to complex engineering problems. The book covers the areas of big data, machine learning, bio-inspired algorithms, artificial intelligence and their applications.

This book constitutes Part III of the refereed four-volume post-conference proceedings of the 4th IFIP TC 12 International Conference on Computer and Computing Technologies in Agriculture, CCTA 2010, held in Nanchang, China, in October 2010. The 352 revised papers presented were carefully selected from numerous submissions. They cover a wide range of interesting theories and applications of information technology in agriculture, including simulation models and decision-support systems for agricultural production, agricultural product quality testing, traceability and e-commerce technology, the application of information and communication technology in agriculture, and universal information service technology and service systems development in rural areas.

The 4th European Congress of the International Federation for Medical and Biological Federation was held in Antwerp, November 2008. The scientific discussion on the conference and in this conference proceedings include the following issues: Signal & Image Processing ICT Clinical Engineering and Applications Biomechanics and Fluid Biomechanics Biomaterials and Tissue Repair Innovations and Nanotechnology Modeling and Simulation Education and Professional

With the ongoing release of 3D movies and the emergence of 3D TVs, 3D imaging technologies have penetrated our daily lives. Yet choosing from the numerous 3D vision methods available can be frustrating for scientists and engineers, especially without a comprehensive resource to consult. Filling this gap, Handbook of 3D Machine Vision: Optical Metrology and Imaging gives an extensive, in-depth look at the most popular 3D imaging techniques. It focuses on noninvasive, noncontact optical methods (optical metrology and imaging). The handbook begins with the well-studied method of stereo vision and explains how random speckle patterns or space-time varying patterns substantially improve the results of stereo vision. It then discusses stereo particle image velocimetry as a major experimental means in fluid dynamics, the robust and easy-to-implement structured-light technique for computer science applications, digital holography for performing micro- to nanoscale measurements, and grating, interferometry, and fringe projection techniques for precisely measuring dynamically deformable natural objects. The book goes on to describe techniques that do not require triangulation to recover a 3D shape, including time-of-flight techniques and uniaxial 3D shape measurement, as well as 3D measurement techniques that are not restricted to surface capture, such as 3D ultrasound, optical coherence tomography, and 3D endoscopy. The book also explores how novel 3D imaging techniques are being applied in the promising field of biometrics—which may prove essential to security and public safety. Written by key players in the field and inventors of important imaging technologies, this authoritative, state-of-the-art handbook helps you understand the core of 3D imaging technology and choose the proper 3D imaging technique for your needs. For each technique, the book provides its mathematical foundations, summarizes its successful applications, and discusses its limitations.

Image Processing, Analysis and Machine Vision represent an exciting part of modern cognitive and computer science. Following an explosion of interest during the Seventies, the Eighties were characterized by the maturing of the field and the significant growth of active applications; Remote Sensing, Technical Diagnostics, Autonomous Vehicle Guidance and Medical Imaging are the most rapidly developing areas. This progress can be seen in an increasing number of software and hardware products on the market as well as in a number of digital image processing and machine vision courses offered at universities world-wide. There are many texts available in the areas we cover - most (indeed, all of which we know) are referenced somewhere in this book. The subject suffers, however, from a shortage of texts at the 'elementary' level - that appropriate for undergraduates beginning or completing their studies of the topic, or for Master's students - and the very rapid developments that have taken and are still taking place, which quickly age some of the very good text books produced over the last decade or so. This book reflects the authors' experience in teaching one and two semester undergraduate and graduate courses in Digital Image Processing, Digital Image Analysis, Machine Vision, Pattern Recognition and Intelligent Robotics at their respective institutions.

Work on practical computer vision projects covering advanced object detector techniques and modern deep learning and machine learning algorithms Key Features Learn about

the new features that help unlock the full potential of OpenCV 4 Build face detection applications with a cascade classifier using face landmarks Create an optical character recognition (OCR) model using deep learning and convolutional neural networks Book Description Mastering OpenCV, now in its third edition, targets computer vision engineers taking their first steps toward mastering OpenCV. Keeping the mathematical formulations to a solid but bare minimum, the book delivers complete projects from ideation to running code, targeting current hot topics in computer vision such as face recognition, landmark detection and pose estimation, and number recognition with deep convolutional networks. You'll learn from experienced OpenCV experts how to implement computer vision products and projects both in academia and industry in a comfortable package. You'll get acquainted with API functionality and gain insights into design choices in a complete computer vision project. You'll also go beyond the basics of computer vision to implement solutions for complex image processing projects. By the end of the book, you will have created various working prototypes with the help of projects in the book and be well versed with the new features of OpenCV4. What you will learn Build real-world computer vision problems with working OpenCV code samples Uncover best practices in engineering and maintaining OpenCV projects Explore algorithmic design approaches for complex computer vision tasks Work with OpenCV's most updated API (v4.0.0) through projects Understand 3D scene reconstruction and Structure from Motion (SfM) Study camera calibration and overlay AR using the ArUco Module Who this book is for This book is for those who have a basic knowledge of OpenCV and are competent C++ programmers. You need to have an understanding of some of the more theoretical/mathematical concepts, as we move quite quickly throughout the book.

OpenCV is mainly used in Computer Vision and image processing and is considered to be one of the best open source libraries that helps developers focus on constructing complete projects on image processing, motion detection, and image segmentation. This book will be your guide to understanding the basic OpenCV concepts and algorithms. This highly anticipated new edition provides a comprehensive account of face recognition research and technology, spanning the full range of topics needed for designing operational face recognition systems. After a thorough introductory chapter, each of the following chapters focus on a specific topic, reviewing background information, up-to-date techniques, and recent results, as well as offering challenges and future directions. Features: fully updated, revised and expanded, covering the entire spectrum of concepts, methods, and algorithms for automated face detection and recognition systems; provides comprehensive coverage of face detection, tracking, alignment, feature extraction, and recognition technologies, and issues in evaluation, systems, security, and applications; contains numerous step-by-step algorithms; describes a broad range of applications; presents contributions from an international selection of experts; integrates numerous supporting graphs, tables, charts, and performance data.

This monograph provides comprehensive guidelines on the current and future trends of innovative simulation systems. In particular, their important components, such as augmented reality and unmanned vehicles are presented. The book consists of three parts. Each part presents good practices, new methods, concepts of systems and new algorithms. Presented challenges and solutions are the results of research and conducted by the contributing authors. The book describes and evaluates the current state of knowledge in the field of innovative simulation systems. Throughout the chapters there are presented current issues and concepts of systems, technology, equipment, tools, research challenges and current, past and future applications of simulation systems. The book is addressed to a wide audience: academic staff, representatives of research institutions, employees of companies and government agencies as well as students and graduates of technical universities in the country and abroad. The book can be a valuable source of information for constructors and developers of innovative simulation systems and their components. Scientists and researchers involved in mechanics, control algorithms, image processing, computer vision or data fusion can find many valuable suggestions and solutions.

Delve into practical computer vision and image processing projects and get up to speed with advanced object detection techniques and machine learning algorithms Key Features Discover best practices for engineering and maintaining OpenCV projects Explore important deep learning tools for image classification Understand basic image matrix formats and filters Book Description OpenCV is one of the best open source libraries available and can help you focus on constructing complete projects on image processing, motion detection, and image segmentation. This Learning Path is your guide to understanding OpenCV concepts and algorithms through real-world examples and activities. Through various projects, you'll also discover how to use complex computer vision and machine learning algorithms and face detection to extract the maximum amount of information from images and videos. In later chapters, you'll learn to enhance your videos and images with optical flow analysis and background subtraction. Sections in the Learning Path will help you get to grips with text segmentation and recognition, in addition to guiding you through the basics of the new and improved deep learning modules. By the end of this Learning Path, you will have mastered commonly used computer vision techniques to build OpenCV projects from scratch. This Learning Path includes content from the following Packt books: Mastering OpenCV 4 - Third Edition by Roy Shilkrot and David Millán Escrivá Learn OpenCV 4 By Building Projects - Second Edition by David Millán Escrivá, Vinícius G. Mendonça, and Prateek Joshi What you will learn Stay up-to-date with algorithmic design approaches for complex computer vision tasks Work with OpenCV's most up-to-date API through various projects Understand 3D scene reconstruction and Structure from Motion (SfM) Study camera calibration and overlay augmented reality (AR) using the ArUco module Create CMake scripts to compile your C++ application Explore segmentation and feature extraction techniques Remove backgrounds from static scenes to identify moving objects for surveillance Work with new OpenCV functions to detect and recognize text with Tesseract Who this book is for If you are a software developer with a basic understanding of computer vision and image processing and want to develop interesting computer vision applications with OpenCV, this Learning Path is for you. Prior knowledge of C++ and familiarity with mathematical concepts will help you better understand the concepts in this Learning Path.

This book constitutes the refereed proceedings of the 4th International Workshop on Machine Learning for Medical Reconstruction, MLMIR 2021, held in conjunction with MICCAI 2021, in October 2021. The workshop was planned to take place in Strasbourg, France, but was held virtually due to the COVID-19 pandemic. The 13 papers presented were carefully reviewed and selected from 20 submissions. The papers are organized in the following topical sections: deep learning for magnetic resonance imaging and deep learning for general image reconstruction.

Advanced Computing, Networking and Informatics are three distinct and mutually exclusive disciplines of knowledge with no apparent sharing/overlap among them. However, their convergence is observed in many real world applications, including cyber-security, internet banking, healthcare, sensor networks, cognitive radio, pervasive computing amidst many others. This two-volume proceedings explore the combined use of Advanced Computing and Informatics in the next generation wireless networks and security, signal and image processing, ontology and human-computer interfaces (HCI). The two volumes together include 148 scholarly papers, which have been accepted for presentation from over 640 submissions in the second International Conference on Advanced Computing, Networking and Informatics, 2014, held in Kolkata, India during June 24-26, 2014. The first volume includes innovative computing techniques and relevant research results in informatics with selective applications in pattern recognition, signal/image processing and HCI. The second volume on the other hand demonstrates the possible scope of the computing techniques and informatics in wireless communications, networking and security.

Ever wondered what the state of the art is in machine learning and data mining? Well, now you can find out. This book constitutes the refereed proceedings of the 5th International Conference on Machine Learning and Data Mining in Pattern Recognition, held in Leipzig, Germany, in July 2007. The 66 revised full papers presented together with 1 invited talk were carefully reviewed and selected from more than 250 submissions. The papers are organized in topical sections.

The 33 peer-reviewed contributions published in this book address a wide range of topics related to the theory and applications of intelligent distributed computing and multi-agent systems. They cover topics from bio-informatics to semantic web services.

Updated for OpenCV 4 and Python 3, this book covers the latest on depth cameras, 3D tracking, augmented reality, and deep neural networks, helping you solve real-world computer vision problems with practical code. Key Features Build powerful computer vision applications in concise code with OpenCV 4 and Python 3 Learn the fundamental concepts of image processing, object classification, and 2D and 3D tracking Train, use, and understand machine learning models such as Support Vector Machines (SVMs) and neural networks Book Description Computer vision is a rapidly evolving science, encompassing diverse applications and techniques. This book will not only help those who are getting started with computer vision but also experts in the domain. You'll be able to put theory into practice by building apps with OpenCV 4 and Python 3. You'll start by understanding OpenCV 4 and how to set it up with Python 3 on various platforms. Next, you'll learn how to perform basic operations such as reading, writing, manipulating, and displaying still images, videos, and camera feeds. From taking you through image processing, video analysis, and depth estimation and segmentation, to helping you gain practice by building a GUI app, this book ensures you'll have opportunities for hands-on activities. Next, you'll tackle two popular challenges: face detection and face recognition. You'll also learn about object classification and machine learning concepts, which will enable you to create and use object detectors and classifiers, and even track objects in movies or video camera feed. Later, you'll develop your skills in 3D tracking and augmented reality. Finally, you'll cover ANNs and DNNs, learning how to develop apps for recognizing handwritten digits and classifying a person's gender and age. By the end of this book, you'll have the skills you need to execute real-world computer vision projects. What you will learn Install and familiarize yourself with OpenCV 4's Python 3 bindings Understand image processing and video analysis basics Use a depth camera to distinguish foreground and background regions Detect and identify objects, and track their motion in videos Train and use your own models to match images and classify objects Detect and recognize faces, and classify their gender and age Build an augmented reality application to track an image in 3D Work with machine learning models, including SVMs, artificial neural networks (ANNs), and deep neural networks (DNNs) Who this book is for If you are interested in learning computer vision, machine learning, and OpenCV in the context of practical real-world applications, then this book is for you. This OpenCV book will also be useful for anyone getting started with computer vision as well as experts who want to stay up-to-date with OpenCV 4 and Python 3. Although no prior knowledge of image processing, computer vision or machine learning is required, familiarity with basic Python programming is a must.

This book collects the proceedings of the International Workshop on Intelligent Computing in Pattern Analysis/Synthesis, IWICPAS 2006, held in Xi'an, China alongside the 18th International Conference on Pattern Recognition, ICPR 2006. The book presents 51 revised full papers and 128 revised poster papers, organized in topical sections on object detection, tracking and recognition, pattern representation and modeling, visual pattern modeling, image processing, compression and coding and texture analysis/synthesis.

This book presents innovative ideas, cutting-edge findings, and novel techniques, methods, and applications in a broad range of cybersecurity and cyberthreat intelligence areas. As our society becomes smarter, there is a corresponding need to be able to secure our cyberfuture. The approaches and findings described in this book are of interest to businesses and governments seeking to secure our data and underpin infrastructures, as well as to individual users.

Robotic systems consist of object or scene recognition, vision-based motion control, vision-based mapping, and dense range sensing, and are used for identification and navigation. As these computer vision and robotic connections continue to develop, the benefits of vision technology including savings, improved quality, reliability, safety, and productivity are revealed. Robotic Vision: Technologies for Machine Learning and Vision Applications is a comprehensive collection which highlights a solid framework for understanding existing work and planning future research. This book includes current research on the fields of robotics, machine vision, image processing and pattern recognition that is important to applying machine vision methods in the real world.

The book offers a thorough introduction to machine vision. It is organized in two parts. The first part covers the image acquisition, which is the crucial component of most automated visual inspection systems. All important methods are described in great detail and are presented with a reasoned structure. The second part deals with the modeling and processing of image signals and pays particular regard to methods, which are relevant for automated visual inspection.

This book constitutes the refereed post-conference proceedings of four workshops held at the 15th Asian Conference on Computer Vision, ACCV 2020, which was held in Kyoto, Japan, in November/December 2020.* The 13 papers were carefully reviewed and selected from the following two workshops: Machine Learning and Computing for Visual Semantic Analysis (MLCSA) and Multi-Visual-Modality Human Activity Understanding (MMHAU). *The conference and workshops were held virtually.

It is with great pleasure that we present the proceedings of the 4th International Symposium on Visual Computing (ISVC 2008) in Las Vegas, Nevada. ISVC offers a common umbrella for the four main areas of visual computing including vision, graphics, visualization, and virtual reality. Its goal is to provide a forum for researchers, scientists, engineers and practitioners throughout the world to present their latest research findings, ideas, developments and applications in the broader area of visual computing. This year, ISVC grew significantly; the program consisted of 15 oral sessions, 1 poster session, 8 special tracks, and 6 keynote presentations. The response to the call for papers was very strong; we received over 340 submissions for the main symposium from which we accepted 102 papers for oral presentation and 70 papers for poster presentation. Special track papers were solicited separately through the Organizing and Program Committees of each track. A total of 56 papers were accepted for oral presentation and 8 papers for poster presentation in the special tracks. All papers were reviewed with an emphasis on potential to contribute to the state of the art in the field. Selection criteria included accuracy and originality of ideas, clarity and significance of results, and presentation quality. The review process was quite rigorous, involving two to three independent blind reviews followed by several days of discussion. During the discussion period we tried to correct anomalies and errors that might have existed in the initial reviews.

Computer and Machine Vision: Theory, Algorithms, Practicalities (previously entitled Machine Vision) clearly and systematically presents the basic methodology of computer and machine vision, covering the essential elements of the theory while emphasizing algorithmic and practical design constraints. This fully revised fourth edition has brought in more of the concepts and applications of computer vision, making it a very comprehensive and up-to-date tutorial text suitable for graduate students, researchers and R&D engineers working in this vibrant subject. Key features include: Practical examples and case studies give the 'ins and outs' of developing real-world vision systems, giving engineers the realities of implementing the principles in practice New chapters containing case studies on surveillance and driver assistance systems give practical methods on these cutting-edge applications in computer vision Necessary mathematics and essential theory are made approachable by careful explanations and well-illustrated examples Updated content and new sections cover topics such as human iris location, image stitching, line detection using RANSAC, performance measures, and hyperspectral imaging The 'recent developments' section now included in each chapter will be useful in bringing students and practitioners up to date with the subject Mathematics and essential theory are made approachable by careful explanations and well-illustrated examples Updated content and new sections cover topics such as human iris location, image stitching, line detection using RANSAC, performance measures, and hyperspectral imaging The 'recent developments' section now included in each chapter will be useful in bringing students and practitioners up to date with the subject

This book presents cutting-edge research on innovative human systems integration and human-machine interaction, with an emphasis on artificial intelligence and automation, as well as computational modeling and simulation. It covers a wide range of applications in the area of design, construction and operation of products, systems and services. The book describes advanced methodologies and tools for evaluating and improving interface usability, new models, and case studies and best practices in virtual, augmented and mixed reality systems, with a special focus on dynamic environments. It also discusses various factors concerning the human user, hardware, and artificial intelligence software. Based on the proceedings of the 4th International Conference on Intelligent Human Systems Integration (IHSI 2021), held on February 22-24, 2021, the book also examines the forces that are currently shaping the nature of computing and cognitive systems, such as the need to reduce hardware costs; the importance of infusing intelligence and automation; the trend toward hardware miniaturization and optimization; the need for a better assimilation of computation in the environment; and social concerns regarding access to computers and systems for people with special needs. It offers a timely survey and a practice-oriented reference guide for policy- and decision-makers, human factors engineers, systems developers and users alike.

Across three volumes, the Handbook of Image Processing and Computer Vision presents a comprehensive review of the full range of topics that comprise the field of computer vision, from the acquisition of signals and formation of images, to learning techniques for scene understanding. The authoritative insights presented within cover all aspects of the sensory subsystem required by an intelligent system to perceive the environment and act autonomously. Volume 2 (From Image to Pattern) examines image transforms, image restoration, and image segmentation. Topics and features:

- Describes the fundamental processes in the field of artificial vision that enable the formation of digital images from light energy
- Covers light propagation, color perception, optical systems, and the analog-to-digital conversion of the signal
- Discusses the information recorded in a digital image, and the image processing algorithms that can improve the visual qualities of the image
- Reviews boundary extraction algorithms, key linear and geometric transformations, and techniques for image restoration
- Presents a selection of different image segmentation algorithms, and of widely-used algorithms for the automatic detection of points of interest
- Examines important algorithms for object recognition, texture analysis, 3D reconstruction, motion analysis, and camera calibration
- Provides an introduction to four significant types of neural network, namely RBF, SOM, Hopfield, and deep neural networks

This all-encompassing survey offers a complete reference for all students, researchers, and practitioners involved in developing intelligent machine vision systems. The work is also an invaluable resource for professionals within the IT/software and electronics industries involved in machine vision, imaging, and artificial intelligence. Dr. Cosimo D'Amico is a Research Scientist in Computer Vision and Pattern Recognition in the Institute of Applied Sciences and Intelligent Systems (ISAI) at the Italian National Research Council (CNR). Dr. Arcangelo D'Amico is a researcher and the former Director of the Institute of Intelligent Systems for Automation (ISSIA) at the CNR. His research interests are in the fields of Computer Vision, Pattern Recognition, Machine Learning, and Neural Computation.

This book constitutes the refereed proceedings of the 4th International Workshop on Machine Learning in Medical Imaging, MLMI 2013, held in conjunction with the International Conference on Medical Image Computing and Computer Assisted Intervention, MICCAI 2013, in Nagoya, Japan, in September 2013. The 32 contributions included in this volume were carefully reviewed and selected from 57 submissions. They focus on major trends and challenges in the area of machine learning in medical imaging and aim to identify new cutting-edge techniques and their use in medical imaging.

Machine vision technology has revolutionised the process of automated inspection in manufacturing. The specialist techniques required for inspection of natural products, such as food, leather, textiles and stone is still a challenging area of research. Topological variations make image processing algorithm development, system integration and mechanical handling issues much more complex. The practical issues of making machine vision systems operate robustly in often hostile environments together with the latest technological advancements are reviewed in this volume. Features:

- Case studies based on real-world problems to demonstrate the practical application of machine vision systems.
- In-depth description of system components including image processing, illumination, real-time hardware, mechanical handling, sensing and on-line testing.
- Systems-level integration of constituent technologies for bespoke applications across a variety of industries.
- A diverse range of example applications that a system may be required to handle from live fish to ceramic tiles.

Machine Vision for the Inspection of Natural Products will be a valuable resource for researchers developing innovative machine vision systems in collaboration with food technology, textile and agriculture sectors. It will also appeal to practising engineers and managers in industries where the application of machine vision can enhance product safety and process efficiency.

"This book investigates machine learning (ML), one of the most fruitful fields of current research, both in the proposal of new techniques and theoretic algorithms and in their application to real-life problems"--Provided by publisher.

This book presents high-quality papers from the Fourth International Conference on Microelectronics, Computing & Communication Systems (MCCS 2019). It discusses the latest technological trends and advances in MEMS and nanoelectronics, wireless communication, optical communication, instrumentation, signal processing, image processing, bioengineering, green energy, hybrid vehicles, environmental science, weather forecasting, cloud computing, renewable energy, RFID, CMOS sensors, actuators, transducers, telemetry systems, embedded systems and sensor network applications. It includes papers based on original theoretical, practical and experimental simulations, development, applications, measurements and testing. The applications and solutions discussed here provide excellent reference material for future product development.

This volume constitutes the refereed post-conference proceedings of the Fourth International Conference on Machine Learning and Intelligent Communications, MLICOM 2019, held in Nanjing, China, in August 2019. The 65 revised full papers were carefully selected from 114 submissions. The papers are organized thematically in machine learning, intelligent positioning and navigation, intelligent multimedia processing and security, wireless mobile network and security, cognitive radio and intelligent networking, IoT, intelligent satellite communications and networking, green communication and intelligent networking, ad-hoc and sensor networks, resource allocation in wireless and cloud networks, signal processing in wireless and optical communications, and intelligent cooperative communications and networking.

The two-volume set LNCS 10735 and 10736 constitutes the thoroughly refereed proceedings of the 18th Pacific-Rim Conference on Multimedia, PCM 2017, held in Harbin, China, in September 2017. The 184 full papers presented were carefully reviewed and selected from 264 submissions. The papers are organized in topical sections on: Best Paper Candidate; Video Coding; Image Super-resolution, Deblurring, and Dehazing; Person Identity and Emotion; Tracking and Action Recognition; Detection and Classification; Multimedia Signal Reconstruction and Recovery; Text and Line Detection/Recognition; Social Media; 3D and Panoramic Vision; Deep Learning for Signal Processing and Understanding; Large-Scale Multimedia Affective Computing; Sensor-enhanced Multimedia Systems; Content Analysis; Coding, Compression, Transmission, and Processing.

This book constitutes the refereed proceedings of the 4th International Conference on Computational Modeling of Objects Presented in Images, CompIMAGE 2014, held in Pittsburgh, PA, USA, in September 2014. The 29 revised full papers presented together with 10 short papers and 6 keynote talks were carefully reviewed and selected from 54 submissions. The papers cover the following topics: medical treatment, imaging and analysis; image registration, denoising and feature identification; image segmentation; shape analysis, meshing and graphs; medical image processing and simulations; image recognition, reconstruction and predictive modeling; image-based modeling and simulations; and computer vision and data-driven investigations.

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.

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