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New Trends In Computational Vision And Bio Inspired Computing

These are the proceedings of the International Conference on ISMAC-CVB, held in Palladam, India, in May 2018. The book focuses on research to design new analysis paradigms and computational solutions for quantification of information provided by object recognition, scene understanding of computer vision and different algorithms like convolutional neural networks to allow computers to recognize and detect objects in images with unprecedented accuracy and to even understand the relationships between them. The proceedings treat the convergence of ISMAC in Computational Vision and

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Bioengineering technology and includes ideas and techniques like 3D sensing, human visual perception, scene understanding, human motion detection and analysis, visualization and graphical data presentation and a very wide range of sensor modalities in terms of surveillance, wearable applications, home automation etc. ISMAC-CVB is a forum for leading academic scientists, researchers and research scholars to exchange and share their experiences and research results about all aspects of computational vision and bioengineering.

The field of computational intelligence has grown tremendously over that past five years, thanks to evolving soft computing and artificial intelligent methodologies, tools and techniques for envisaging the essence of intelligence

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embedded in real life observations. Consequently, scientists have been able to explain and understand real life processes and practices which previously often remain unexplored by virtue of their underlying imprecision, uncertainties and redundancies, and the unavailability of appropriate methods for describing the incompleteness and vagueness of information represented. With the advent of the field of computational intelligence, researchers are now able to explore and unearth the intelligence, otherwise insurmountable, embedded in the systems under consideration. Computational Intelligence is now not limited to only specific computational fields, it has made inroads in signal processing, smart manufacturing, predictive control, robot navigation, smart cities, and sensor design to name a

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few. Recent Trends in Computational Intelligence Enabled Research: Theoretical Foundations and Applications explores the use of this computational paradigm across a wide range of applied domains which handle meaningful information. Chapters investigate a broad spectrum of the applications of computational intelligence across different platforms and disciplines, expanding our knowledge base of various research initiatives in this direction. This volume aims to bring together researchers, engineers, developers and practitioners from academia and industry working in all major areas and interdisciplinary areas of computational intelligence, communication systems, computer networks, and soft computing. Provides insights into the theory, algorithms, implementation, and application of computational intelligence

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techniques Covers a wide range of applications of deep learning across various domains which are researching the applications of computational intelligence Investigates novel techniques and reviews the state-of-the-art in the areas of machine learning, computer vision, soft computing techniques Emerging Trends in Image Processing, Computer Vision, and Pattern Recognition discusses the latest in trends in imaging science which at its core consists of three intertwined computer science fields, namely: Image Processing, Computer Vision, and Pattern Recognition. There is significant renewed interest in each of these three fields fueled by Big Data and Data Analytic initiatives including but not limited to; applications as diverse as computational biology, biometrics, biomedical imaging, robotics, security,

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and knowledge engineering. These three core topics discussed here provide a solid introduction to image processing along with low-level processing techniques, computer vision fundamentals along with examples of applied applications and pattern recognition algorithms and methodologies that will be of value to the image processing and computer vision research communities. Drawing upon the knowledge of recognized experts with years of practical experience and discussing new and novel applications

Editors: Leonidas Deligiannidis and Hamid Arabnia cover; Many perspectives of image processing spanning from fundamental mathematical theory and sampling, to image representation and reconstruction, filtering in spatial and frequency domain, geometrical transformations, and image

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restoration and segmentation Key application techniques in computer vision some of which are camera networks and vision, image feature extraction, face and gesture recognition and biometric authentication Pattern recognition algorithms including but not limited to; Supervised and unsupervised classification algorithms, Ensemble learning algorithms, and parsing algorithms. How to use image processing and visualization to analyze big data. Discusses novel applications that can benefit from image processing, computer vision and pattern recognition such as computational biology, biometrics, biomedical imaging, robotics, security, and knowledge engineering. Covers key application techniques in computer vision from fundamentals to mid to high level processing some of which are camera

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networks and vision, image feature extraction, face and gesture recognition and biometric authentication. Presents a number of pattern recognition algorithms and methodologies including but not limited to; supervised and unsupervised classification algorithms, Ensemble learning algorithms, and parsing algorithms. Explains how to use image processing and visualization to analyze big data.

This book constitutes the refereed proceedings of the workshops held with the 17th International Conference on Image Analysis and Processing, ICIAP 2013, held in Naples, Italy, in September 2013. The proceedings include papers from the five individual workshops focusing on topics of interest to the pattern recognition, image analysis, and computer vision communities, exploring emergent research

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directions or spotlight cross-disciplinary links with related fields and / or application areas.

This book consists of 20 chapters in which the authors deal with different theoretical and practical aspects of new trends in Collective Computational Intelligence techniques.

Computational Collective Intelligence methods and algorithms are one the current trending research topics from areas related to Artificial Intelligence, Soft Computing or Data Mining among others. Computational Collective Intelligence is a rapidly growing field that is most often understood as an AI sub-field dealing with soft computing methods which enable making group decisions and processing knowledge among autonomous units acting in distributed environments. Web-based Systems, Social Networks, and Multi-Agent Systems

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very often need these tools for working out consistent knowledge states, resolving conflicts and making decisions. The chapters included in this volume cover a selection of topics and new trends in several domains related to Collective Computational Intelligence: Language and Knowledge Processing, Data Mining Methods and Applications, Computer Vision, and Intelligent Computational Methods. This book will be useful for graduate and PhD students in computer science as well as for mature academics, researchers and practitioners interested in the methods and applications of collective computational intelligence in order to create new intelligent systems.

This book constitutes the refereed proceedings of seven workshops held at the 18th International Conference on

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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.

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This book highlights recent advances and emerging technologies that utilize computational intelligence in signal processing, computing, imaging science, artificial intelligence, and their applications. It covers all branches of artificial intelligence and machine learning that are based on computation at some level, e.g. artificial neural networks, evolutionary algorithms, fuzzy systems, and automatic medical identification systems. Exploring recent trends in research and applications, the book offers a valuable resource for professors, researchers, and engineers alike.

[ICIAP International Workshops, WBICV, SSPandBE, 3AS, RGBD, NIVAR, IWBAAS, and MADiMa 2017, Catania, Italy, September 11-15, 2017, Revised Selected Papers](#)
[New Trends in Image Analysis and Processing -- ICIAP 2015](#)

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[Computational Vision and Medical Image Processing IV
Second European Conference on Computer Vision, Santa Margherita Ligure, Italy, May 19-22, 1992, Proceedings](#)

[Fundamentals, Methods and Applications](#)

[Computer Vision](#)

[ICCVBIC 2019](#)

[Naples, Italy, September 2013, Proceedings](#)

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[Theoretical Foundations of Computer Vision](#)

This volume gathers selected, peer-reviewed original contributions presented at the International Conference on Computational Vision and Bio-inspired Computing (ICCVBIC) conference which was held in Coimbatore, India, on November 29-30, 2018. The works included here offer a rich and diverse sampling of recent developments in the fields of Computational Vision, Fuzzy, Image Processing and Bio-inspired Computing. The topics covered include computer vision; cryptography and digital privacy; machine learning and artificial neural networks; genetic algorithms and computational intelligence; the Internet of Things; and biometric systems, to name but a few. The applications discussed range from security, healthcare and epidemic control to urban computing, agriculture and robotics. In this book, researchers, graduate students and professionals will

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find innovative solutions to real-world problems in industry and society as a whole, together with inspirations for further research. Computer Vision and Pattern Recognition (CVPR) together play an important role in the processes involved in environmental informatics due to their pervasive, non-destructive, effective, and efficient natures. As a result, CVPR has made significant contributions to the field of environmental informatics by enabling multi-modal data fusion and feature extraction, supporting fast and reliable object detection and classification, and mining the intrinsic relationship between different aspects of environmental data. Computer Vision and Pattern Recognition in Environmental Informatics describes a number of methods and tools for image interpretation and analysis, which enables observation, modelling, and understanding of environmental targets. In addition to case

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studies on monitoring and modeling plant, soil, insect, and aquatic animals, this publication includes discussions on innovative new ideas related to environmental monitoring, automatic fish segmentation and recognition, real-time motion tracking systems, sparse coding and decision fusion, and cell phone image-based classification and provides useful references for professionals, researchers, engineers, and students with various backgrounds within a multitude of communities.

Computer Vision: Algorithms and Applications explores the variety of techniques commonly used to analyze and interpret images. It also describes challenging real-world applications where vision is being successfully used, both for specialized applications such as medical imaging, and for fun, consumer-level tasks such as image editing and stitching, which students can apply to their own personal photos and

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videos. More than just a source of “recipes,” this exceptionally authoritative and comprehensive textbook/reference also takes a scientific approach to basic vision problems, formulating physical models of the imaging process before inverting them to produce descriptions of a scene. These problems are also analyzed using statistical models and solved using rigorous engineering techniques. Topics and features: structured to support active curricula and project-oriented courses, with tips in the Introduction for using the book in a variety of customized courses; presents exercises at the end of each chapter with a heavy emphasis on testing algorithms and containing numerous suggestions for small mid-term projects; provides additional material and more detailed mathematical topics in the Appendices, which cover linear algebra, numerical techniques, and Bayesian estimation theory; suggests additional reading at the

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end of each chapter, including the latest research in each sub-field, in addition to a full Bibliography at the end of the book; supplies supplementary course material for students at the associated website, <http://szeliski.org/Book/>. Suitable for an upper-level undergraduate or graduate-level course in computer science or engineering, this textbook focuses on basic techniques that work under real-world conditions and encourages students to push their creative boundaries. Its design and exposition also make it eminently suitable as a unique reference to the fundamental techniques and current research literature in computer vision.

This volume collects the papers accepted for presentation at the Second European Conference on Computer Vision, held in Santa Margherita Ligure, Italy, May 19-22, 1992. Sixteen long papers, 41 short papers and 48 posters were selected from 308 submissions.

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The contributions are structured into 14 sections reflecting the major research topics in computer vision currently investigated worldwide. The sections are entitled: features, color, calibration and matching, depth, stereo-motion, tracking, active vision, binocular heads, curved surfaces and objects, reconstruction and shape, recognition, and applications.

New Trends in Computer Graphics contains a selection of research papers submitted to Computer Graphics International '88 (COI '88). COI '88 is the Official Annual Conference of the Computer Graphics Society. Since 1982, this conference has been held in Tokyo. This year, it is taking place in Geneva, Switzerland. In 1989, it will be held in Leeds, U. K. , in 1990 in Singapore, in 1991 in U. S. A. and in 1992 in Montreal, Canada. Over 100 papers were submitted to CGI '88 and 61 papers were selected by the

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International Program Committee. Papers have been grouped into 6 chapters. The first chapter is dedicated to Computer Animation because it deals with all topics presented in the other chapters. Several animation systems are described as well as specific subjects like 3D character animation, quaternions and splines. The second chapter is dedicated to papers on Image Synthesis, in particular new shading models and new algorithms for ray tracing are presented. Chapter 3 presents several algorithms for geometric modeling and new techniques for the creation and manipulation of curves, surfaces and solids and their applications to CAD. In Chapter 4, an important topic is presented: the specification of graphics systems and images using languages and user-interfaces. The last two chapters are devoted to applications in sciences, medicine, engineering, art and business.

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This book contains the full papers presented at ICCEBS 2013 – the 1st International Conference on Computational and Experimental Biomedical Sciences, which was organized in Azores, in October 2013. The included papers present and discuss new trends in those fields, using several methods and techniques, including active shape models, constitutive models, isogeometric elements, genetic algorithms, level sets, material models, neural networks, optimization and the finite element method, in order to address more efficiently different and timely applications involving biofluids, computer simulation, computational biomechanics, image based diagnosis, image processing and analysis, image segmentation, image registration, scaffolds, simulation and surgical planning. The main audience for this book consists of researchers, Ph.D students and graduate students with multidisciplinary interests related to the areas

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of artificial intelligence, bioengineering, biology, biomechanics, computational fluid dynamics, computational mechanics, computational vision, histology, human motion, imagiology, applied mathematics, medical image, medicine, orthopaedics, rehabilitation, speech production and tissue engineering.

The three-volume set, consisting of LNCS 10116, 10117, and 10118, contains carefully reviewed and selected papers presented at 17 workshops held in conjunction with the 13th Asian Conference on Computer Vision, ACCV 2016, in Taipei, Taiwan in November 2016. The 134 full papers presented were selected from 223 submissions. LNCS 10116 contains the papers selected

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[ACCV 2016 International Workshops, Taipei, Taiwan, November 20-24, 2016, Revised Selected Papers](#)

[New Trends in Image Analysis and Processing – ICIAP 2019 ICCVBIC 2020](#)

[Proceedings from IPCV'20, HIMS'20, BIOCOMP'20, and BIOENG'20](#)

[Selected works presented at the ICCVBIC 2018, Coimbatore, India](#)
Acts as single source reference providing

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readers with an overview of how computer vision can contribute to the different applications in the field of road transportation This book presents a survey of computer vision techniques related to three key broad problems in the roadway transportation domain: safety, efficiency, and law enforcement. The individual chapters present significant applications within those problem domains, each presented in a tutorial manner, describing the motivation for and benefits of the application, and a description of the state of the art. Key features: Surveys the applications of

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computer vision techniques to road transportation system for the purposes of improving safety and efficiency and to assist law enforcement. Offers a timely discussion as computer vision is reaching a point of being useful in the field of transportation systems. Available as an enhanced eBook with video demonstrations to further explain the concepts discussed in the book, as well as links to publically available software and data sets for testing and algorithm development. The book will benefit the many researchers, engineers and practitioners of computer vision, digital imaging, automotive

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and civil engineering working in intelligent transportation systems. Given the breadth of topics covered, the text will present the reader with new and yet unconceived possibilities for application within their communities.

This Special Issue presents the latest advances in agriculture, aquaculture, food technology and environmental protection and engineering, discussing, among others, the following issues: new technologies in water, stormwater and wastewater treatment; water saving, lake restoration; new sludge and waste management systems; biodiesel

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production from animal fat waste; the microbiological quality of compound fish feeds for aquaculture; the role of technological processes to improve food quality and safety; new trends in the analysis of food and food components including in vitro, in vivo, and in silico analyses; and functional and structural aspects of bioactivities of food molecules. Computational Vision and Medical Image Processing. VIPIIMAGE 2013 contains invited lectures and full papers presented at VIPIIMAGE 2013 - IV ECCOMAS Thematic Conference on Computational Vision and

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Medical Image Processing (Funchal, Madeira Island, Portugal, 14-16 October 2013). International contributions from 16 countries provide a comprehensive coverage of the current state-of-the-art in the fields of: 3D Vision; Computational Bioimaging and Visualization; Computational Vision and Image Processing applied to Dental Medicine; Computational Vision; Computer Aided Diagnosis, Surgery, Therapy, and Treatment; Data Interpolation, Registration, Acquisition and Compression; Image Processing and Analysis; Image Segmentation; Imaging of Biological Flows; Medical Imaging; Physics of

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Medical Imaging; Shape Reconstruction; Signal Processing; Simulation and Modeling; Software Development for Image Processing and Analysis; Telemedicine Systems and their Applications; Trabecular Bone Characterization; Tracking and Analysis of Movement; Virtual Reality. Related techniques covered in this book include the level set method, finite element method, modal analyses, stochastic methods, principal and independent components analysis and distribution models. Computational Vision and Medical Image Processing. VIPIMAGE 2013 is useful to academics, researchers and

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professionals in Biomechanics, Biomedical Engineering, Computational Vision (image processing and analysis), Computer Sciences, Computational Mechanics and Medicine. This book is a collection of essays devoted in part to new research directions in systems, networks, and control theory, and in part to the growing interaction of these disciplines with new sectors of engineering and applied sciences like coding, computer vision, and hybrid systems. These are new areas of rapid growth and of increasing importance in modern technology. The essays, written by world-leading experts in the

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field, reproduce and expand the plenary and minicourse/jminisymposia invited lectures which were delivered at the Mathematical Theory of Networks and Systems Symposium (MTNS-98), held in Padova, Italy, on July 6-10, 1998. Systems, control, and networks theory has permeated the development of much of present day technology. The impact has been visible in the past fifty years through the dramatic expansion and achievements of the aerospace and avionics industry, through process control and factory automation, robotics, communication signals analysis and synthesis, and, more recently, even finance,

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to name just the most visible applications. The theory has developed from the early phase of its history when the basic tools were elementary complex analysis, Laplace transform, and linear differential equations, to present day, where the mathematics ranges widely from functional analysis, PDE's, abstract algebra, stochastic processes and differential geometry. Irrespective of the particular tools, however, the basic unifying paradigms of feedback, stability, optimal control, and recursive filtering, have remained the bulk of the field and continue to be the basic motivation for the

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theory, coming from the real world.

This book contains extended versions of papers presented at the international Conference VIPIMAGE 2009 – ECCOMAS Thematic Conference on Computational Vision and Medical Image, that was held at Faculdade de Engenharia da Universidade do Porto, Portugal, from 14th to 16th of October 2009. This conference was the second ECCOMAS thematic conference on computational vision and medical image processing. It covered topics related to image processing and analysis, medical imaging and computational modelling and simulation, considering their

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multidisciplinary nature. The book collects the state-of-the-art research, methods and new trends on the subject of computational vision and medical image processing contributing to the development of these knowledge areas.

The sixteen chapters included in this book were written by invited experts of international recognition and address important issues in Medical Image Processing and Computational Vision, including: Object Recognition, Object Detection, Object Tracking, Pose Estimation, Facial Expression Recognition, Image Retrieval, Data Mining,

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Automatic Video Understanding and Management, Edges Detection, Image Segmentation, Modelling and Simulation, Medical thermography, Database Systems, Synthetic Aperture Radar and Satellite Imagery.

Different applications are addressed and described throughout the book, comprising: Object Recognition and Tracking, Facial Expression Recognition, Image Database, Plant Disease Classification, Video Understanding and Management, Image Processing, Image Segmentation, Bio-structure Modelling and Simulation, Medical Imaging, Image Classification, Medical Diagnosis, Urban

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Areas Classification, Land Map Generation.

The book brings together the current state-of-the-art in the various multi-disciplinary solutions for Medical Image Processing and Computational Vision, including research, techniques, applications and new trends contributing to the development of the related areas.

Computational Modelling of Objects Represented in Images: Fundamentals, Methods and Applications III contains all contributions presented at the International Symposium CompIMAGE 2012 - Computational Modelling of Object Presented in Images:

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Fundamentals, Methods and Applications (Rome, Italy, 5-7 September 2012). The contributions cover the state-of-art and new trends in the fields of: - 3D Vision; - Biometric Recognition; - Computational Bioimaging and Visualization; - Computer Vision in Robotics and Automation; - Data Acquisition, Interpolation, Registration and Compression; - Image Enhancement and Restoring; - Image Processing and Analysis; - Image Segmentation; - Medical Imaging; - Modeling and Simulation; - Motion and Deformation Analysis; - Remote Sensing; - Scientific Visualization Computational Modelling of

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Objects Represented in Images: Fundamentals, Methods and Applications III addresses different techniques, such as optimization methods, geometry, finite element method, principal component analysis, stochastic methods, neural networks and fuzzy logic. The book is useful to researchers and students with multidisciplinary interests related to Computational Vision, Computational Mechanics, Medicine, Engineering and Architecture.

[Computer Vision – ACCV 2016 Workshops](#)
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[New Trends in Environmental Engineering, Agriculture, Food Production, and Analysis](#)

This book includes selected papers from the 4th International Conference on Computational Vision and Bio Inspired Computing (ICCVBIC 2020), held in Coimbatore, India, from November 19 to 20, 2020. This proceedings book presents state-of-the-art research innovations in computational vision and bio-inspired techniques. The book reveals the theoretical and practical aspects of bio-inspired computing techniques, like machine learning, sensor-based models, evolutionary optimization and big data modeling and

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management that make use of effectual computing processes in the bio-inspired systems. As such it contributes to the novel research that focuses on developing bio-inspired computing solutions for various domains, such as humancomputer interaction, image processing, sensor-based single processing, recommender systems and facial recognition, which play an indispensable part in smart agriculture, smart city, biomedical and business intelligence applications. Discrete and computational geometry are two fields which in recent years have benefitted from the interaction between mathematics and

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computer science. The results are applicable in areas such as motion planning, robotics, scene analysis, and computer aided design. The book consists of twelve chapters summarizing the most recent results and methods in discrete and computational geometry. All authors are well-known experts in these fields. They give concise and self-contained surveys of the most efficient combinatorial, probabilistic and topological methods that can be used to design effective geometric algorithms for the applications mentioned above. Most of the methods and results discussed in the book have not

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appeared in any previously published monograph. In particular, this book contains the first systematic treatment of epsilon-nets, geometric transversal theory, partitions of Euclidean spaces and a general method for the analysis of randomized geometric algorithms. Apart from mathematicians working in discrete and computational geometry this book will also be of great use to computer scientists and engineers, who would like to learn about the most recent results. System science and engineering is a field that covers a wide spectrum of modern technology. A system can be seen as a

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collection of entities and their interrelationships, which forms a whole greater than the sum of the entities and interacts with people, organisations, cultures and activities and the interrelationships among them. Systems composed of autonomous subsystems are not new, but the increased complexity of modern technology demands ever more reliable, intelligent, robust and adaptable systems to meet evolving needs. This book presents papers delivered at the International Conference on System Science and Engineering (ICSSE2015), held in Morioka, Japan, in July

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2015. Some of the topics covered here include: systems modeling, tools and simulation; cloud robotics and computing systems; systems safety and security; smart grid, human systems and industrial organization and management; and novel applications of systems engineering and systems architecture. Capturing as it does the latest state-of-the-art and challenges in system sciences and its supporting technology, this book will be of interest to all those involved in developing and using system science methodology, tools and techniques

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As the state-of-the-art imaging technologies became more and more advanced, yielding scientific data at unprecedented detail and volume, the need to process and interpret all the data has made image processing and computer vision increasingly important. Sources of data that have to be routinely dealt with today's applications include video transmission, wireless communication, automatic fingerprint processing, massive databanks, non-weary and accurate automatic airport screening, robust night vision, just to name a few. Multidisciplinary inputs from other disciplines such as physics,

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computational neuroscience, cognitive science, mathematics, and biology will have a fundamental impact in the progress of imaging and vision sciences. One of the advantages of the study of biological organisms is to devise very different type of computational paradigms by implementing a neural network with a high degree of local connectivity. This is a comprehensive and rigorous reference in the area of biologically motivated vision sensors. The study of biologically visual systems can be considered as a two way avenue. On the one hand, biological organisms can provide a source of

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inspiration for new computational efficient and robust vision models and on the other hand machine vision approaches can provide new insights for understanding biological visual systems. Along the different chapters, this book covers a wide range of topics from fundamental to more specialized topics, including visual analysis based on a computational level, hardware implementation, and the design of new more advanced vision sensors. The last two sections of the book provide an overview of a few representative applications and current state of the art of the research in this area. This makes it a

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valuable book for graduate, Master, PhD students and also researchers in the field. This proceedings book presents state-of-the-art research innovations in computational vision and bio-inspired techniques. Due to the rapid advances in the emerging information, communication and computing technologies, the Internet of Things, cloud and edge computing, and artificial intelligence play a significant role in the computational vision context. In recent years, computational vision has contributed to enhancing the methods of controlling the operations in biological systems, like ant

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colony optimization, neural networks, and immune systems. Moreover, the ability of computational vision to process a large number of data streams by implementing new computing paradigms has been demonstrated in numerous studies incorporating computational techniques in the emerging bio-inspired models. The book reveals the theoretical and practical aspects of bio-inspired computing techniques, like machine learning, sensor-based models, evolutionary optimization, and big data modeling and management, that make use of effectual computing processes in the bio-inspired systems. As such it contributes

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to the novel research that focuses on developing bio-inspired computing solutions for various domains, such as human-computer interaction, image processing, sensor-based single processing, recommender systems, and facial recognition, which play an indispensable part in smart agriculture, smart city, biomedical and business intelligence applications.

This book constitutes the refereed proceedings of seven workshops held at the 19th International Conference on Image Analysis and Processing, ICIAP 2017, in Catania, Italy, in September 2017: First

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International Workshop on Brain-Inspired Computer Vision – WBICV 2017; Social Signal Processing and Beyond - SSPandBE 2017; Automatic affect analysis and synthesis - 3AS 2017; Background learning for detection and tracking from RGBD Videos - RGBD 2017; Natural human-computer Interaction and ecological perception in immersive Virtual and Augmented Reality - NIVAR 2017; 1st International Workshop on Biometrics as-a-service: cloud-based technology, systems and applications - IWBAAS 2017; 3rd International Workshop on Multimedia Assisted Dietary Management - MADiMa 2017.

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This book constitutes the refereed proceedings of the 17th Iberoamerican Congress on Pattern Recognition, CIARP 2012, held in Buenos Aires, Argentina, in September 2012. The 109 papers presented, among them two tutorials and four keynotes, were carefully reviewed and selected from various submissions. The papers are organized in topical sections on face and iris: detection and recognition; clustering; fuzzy methods; human actions and gestures; graphs; image processing and analysis; shape and texture; learning, mining and neural networks; medical images; robotics, stereo vision and real

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time; remote sensing; signal processing; speech and handwriting analysis; statistical pattern recognition; theoretical pattern recognition; and video analysis.

[Proceedings of the 5th Eccomas Thematic Conference on Computational Vision and Medical Image Processing \(VipIMAGE 2015, Tenerife, Spain, October 19-21, 2015\)](#)
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This book constitutes the refereed proceedings of five workshops and an

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industrial session held at the 20th International Conference on Image Analysis and Processing, ICIAP 2019, in Trento, Italy, in September 2019; Second International Workshop on Recent Advances in Digital Security: Biometrics and Forensics (BioFor 2019); First International Workshop on Pattern Recognition for Cultural Heritage (PatReCH 2019); First International Workshop eHealth in the Big Data and Deep Learning Era (e-BADLE 2019); International Workshop on Deep Understanding Shopper Behaviors and Interactions in Intelligent Retail Environments (DEEPRETAIL 2019); Industrial

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Session.

This book presents a thorough overview of fusion in computer vision, from an interdisciplinary and multi-application viewpoint, describing successful approaches, evaluated in the context of international benchmarks that model realistic use cases. Features: examines late fusion approaches for concept recognition in images and videos; describes the interpretation of visual content by incorporating models of the human visual system with content understanding methods; investigates the fusion of multi-modal features of different semantic levels,

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as well as results of semantic concept detections, for example-based event recognition in video; proposes rotation-based ensemble classifiers for high-dimensional data, which encourage both individual accuracy and diversity within the ensemble; reviews application-focused strategies of fusion in video surveillance, biomedical information retrieval, and content detection in movies; discusses the modeling of mechanisms of human interpretation of complex visual content.

The 13th International Conference on Human-Computer Interaction, HCI International

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2009, was held in San Diego, California, USA, July 19–24, 2009, jointly with the Symposium on Human Interface (Japan) 2009, the 8th International Conference on Engineering Psychology and Cognitive Ergonomics, the 5th International Conference on Universal Access in Human–Computer Interaction, the Third International Conference on Virtual and Mixed Reality, the Third International Conference on Internationalization, Design and Global Development, the Third International Conference on Online Communities and Social Computing, the 5th International Conference on Augmented Cognition, the Second

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International Conference on Digital Human Mod- ing, and the First International Conference on Human Centered Design. A total of 4,348 individuals from academia, research institutes, industry and gove- mental agencies from 73 countries submitted contributions, and 1,397 papers that were judged to be of high scientific quality were included in the program. These papers - dress the latest research and development efforts and highlight the human aspects of design and use of computing systems. The papers accepted for presentation thoroughly cover the entire field of human-computer interaction,

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addressing major advances in the knowledge and effective use of computers in a variety of application areas.

VipIMAGE 2015 contains invited lectures and full papers presented at VIPIMAGE 2015 - V ECCOMAS Thematic Conference on Computational Vision and Medical Image Processing (Tenerife, Canary Islands, Spain, 19-21 October, 2015). International contributions from 19 countries provide a comprehensive coverage of the current state-of-the-art in the fields of: 3D Vision; Computational Bio-Imaging and Visualization; Computational Vision; Computer Aided Diagnosis, Surgery,

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Therapy and Treatment; Data Interpolation, Registration, Acquisition and Compression; Industrial Inspection; Image Enhancement; Image Processing and Analysis; Image Segmentation; Medical Imaging; Medical Rehabilitation; Physics of Medical Imaging; Shape Reconstruction; Signal Processing; Simulation and Modelling; Software Development for Image Processing and Analysis; Telemedicine Systems and their Applications; Tracking and Analysis of Movement and Deformation; Virtual Reality. Computational Vision and Medical Image Processing. VipIMAGE 2015 will be useful to

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academics, researchers and professionals in Biomechanics, Biomedical Engineering, Computational Vision (image processing and analysis), Computer Sciences, Computational Mechanics, Signal Processing, Medicine and Rehabilitation.

Computer Vision is a rapidly growing field of research investigating computational and algorithmic issues associated with image acquisition, processing, and understanding. It serves tasks like manipulation, recognition, mobility, and communication in diverse application areas such as manufacturing, robotics, medicine, security

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and virtual reality. This volume contains a selection of papers devoted to theoretical foundations of computer vision covering a broad range of fields, e.g. motion analysis, discrete geometry, computational aspects of vision processes, models, morphology, invariance, image compression, 3D reconstruction of shape. Several issues have been identified to be of essential interest to the community: non-linear operators; the transition between continuous to discrete representations; a new calculus of non-orthogonal partially dependent systems. Assembled in this volume is a collection of

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some of the state-of-the-art methods that are using computer vision and machine learning techniques as applied in robotic applications. Currently there is a gap between research conducted in the computer vision and robotics communities. This volume discusses contrasting viewpoints of computer vision vs. robotics, and provides current and future challenges discussed from a research perspective.

Computer vision is the science and technology of machines that see. As a scientific discipline, computer vision is concerned with the theory and technology for building

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artificial systems that obtain information from images. The image data can take many forms, such as a video sequence, views from multiple cameras, or multi-dimensional data from a medical scanner. As a technological discipline, computer vision seeks to apply the theories and models of computer vision to the construction of computer vision systems. Examples of applications of computer vision systems include systems for controlling processes (e.g. an industrial robot or an autonomous vehicle). Detecting events (e.g. for visual surveillance). Organizing information (e.g. for indexing databases of

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images and image sequences), Modeling objects or environments (e.g. industrial inspection, medical image analysis or topographical modeling), Interaction (e.g. as the input to a device for computer-human interaction). Computer vision can also be described as a complement (but not necessarily the opposite) of biological vision. In biological vision, the visual perception of humans and various animals are studied, resulting in models of how these systems operate in terms of physiological processes. Computer vision, on the other hand, studies and describes artificial vision system that are implemented

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in software and/or hardware.

Interdisciplinary exchange between biological and computer vision has proven increasingly fruitful for both fields. Sub-domains of computer vision include scene reconstruction, event detection, tracking, object recognition, learning, indexing, ego-motion and image restoration. This new book presents leading-edge new research from around the world.

[*ICIAP International Workshops, BioFor, PatReCH, e-BADLE, DeepRetail, and Industrial Session, Trento, Italy, September 9-10, 2019, Revised Selected Papers*](#)

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[ICIAP 2015 International Workshops, BioFor, CTMR, RHEUMA, ISCA, MADiMa, SBMI, and QoEM, Genoa, Italy, September 7-8, 2015, Proceedings](#)

[Proceedings of CG International '88](#)

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[International 2009, San Diego, CA, USA, July 19-24, 2009, Proceedings](#)

[17th Iberoamerican Congress, CIARP 2012,](#)

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