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The sixteen-volume set comprising the LNCS volumes 11205-11220 constitutes the refereed proceedings of the 15th European Conference on Computer Vision, ECCV 2018, held in Munich, Germany, in September 2018. The 776 revised papers presented were carefully reviewed and selected from 2439 submissions. The papers are organized in topical sections on learning for vision; computational photography; human analysis; human sensing; stereo and reconstruction; optimization; matching and recognition; video attention; and poster sessions.

The eight-volume set comprising LNCS volumes 9905-9912 constitutes the refereed proceedings of the 14th European Conference on Computer Vision, ECCV 2016, held in Amsterdam, The Netherlands, in October 2016. The 415 revised papers presented were carefully reviewed and selected from 1480 submissions. The papers cover all aspects of computer vision and pattern recognition such as 3D computer vision; computational photography, sensing and display; face and gesture; low-level vision and image processing; motion and tracking; optimization methods; physics-based vision, photometry and shape-from-X; recognition: detection, categorization, indexing, matching; segmentation, grouping and shape representation; statistical methods and learning; video: events, activities and surveillance; applications. They are organized in topical sections on detection, recognition and retrieval; scene understanding; optimization; image and video processing; learning; action, activity and tracking; 3D; and 9 poster sessions. This book is a printed edition of the Special Issue "Assistance Robotics and Biosensors" that was published in Sensors

I-Media-Cities. Innovative e-Environment for Research on Cities and the Media presents the results of an innovative project undertaken by the film archives of Athens, Barcelona, Bologna, Brussels, Copenhagen, Stockholm, Frankfurt, Turin and Vienna, in conjunction with several leading research centres and technological innovators. Together they have developed a digital platform for viewing a wide range of images and motion pictures. More than 1,000 films dating from 1890 to 1989 have been incorporated in the platform, expressly selected to give the project coherence and meaning. Each city is represented both singularly and generally, revealing similarities and differences between them. The producers, actors, directors, places, people, and historical, social and political events are listed to facilitate analysis in areas such as sociology, urban anthropology, town planning, and architectural history, among others. The objective is to propose a new way of disseminating film collections, bringing them to a wider public, and stimulating research into cities in the fields of the humanities.

This book presents the latest research findings, methods and development techniques, challenges and solutions concerning UPC from both theoretical and practical perspectives, with an emphasis on innovative, mobile and Internet services. With the proliferation of wireless technologies and electronic devices, there is a rapidly growing interest in Ubiquitous and Pervasive Computing (UPC), which makes it possible to create a human-oriented computing environment in which computer chips are embedded in everyday objects and interact with the physical world. Through UPC, people can go online even while moving around, thus enjoying nearly permanent access to their preferred services. Though it has the potential to revolutionize our lives, UPC also poses a number of new research challenges.

The four-volume set LNCS 11056, 110257, 11258, and 11073 constitutes the refereed proceedings of the First Chinese Conference on Pattern Recognition and Computer Vision, PRCV 2018, held in Guangzhou, China, in November 2018. The 179 revised full papers presented were carefully reviewed and selected from 399 submissions. The papers have been organized in the following topical sections: Part I: Biometrics, Computer Vision Application. Part II: Deep Learning. Part III: Document Analysis, Face Recognition and Analysis, Feature Extraction and Selection, Machine Learning. Part IV: Object Detection and Tracking, Performance Evaluation and Database, Remote Sensing.

This three-volume set LNCS 12888, 12898, and 12890 constitutes the refereed conference proceedings of the 11th International Conference on Image and Graphics, ICIG 2021, held in Haikou, China, in August 2021.* The 198 full papers presented were selected from 421 submissions and focus on advances of theory, techniques and algorithms as well as innovative technologies of image, video and graphics processing and fostering innovation, entrepreneurship, and networking. *The conference was postponed due to the COVID-19 pandemic.

The six volume set LNCS 11361-11366 constitutes the proceedings of the 14th Asian Conference on Computer Vision, ACCV 2018, held in Perth, Australia, in December 2018. The total of 274 contributions was carefully reviewed and selected from 979 submissions during two rounds of reviewing and improvement. The papers focus on motion and tracking, segmentation and grouping, image-based modeling, deep learning, object recognition object recognition, object detection and categorization, vision and language, video analysis and event recognition, face and gesture analysis, statistical methods and learning, performance evaluation, medical image analysis, document analysis, optimization methods, RGBD and depth camera processing, robotic vision, applications of computer vision.

This book constitutes the thoroughly refereed post-conference proceedings of the 18th International Conference on Information Security Applications, WISA 2017, held on Jeju Island, Korea, in August 2017. The 12 revised full papers and 15 short papers presented in this volume were carefully reviewed and selected from 53 submissions. The papers are organized in topical sections such as attack and defense; theory in security; web security and emerging technologies; systems security and authentication; crypto protocols; and attack detections and legal aspects.

This book constitutes the refereed proceedings of the 14th European Conference on Ambient Intelligence, Aml 2018, held in Larnaca, Cyprus, in November 2018. The 12 revised full papers presented together with 6 short papers were carefully reviewed and selected from 36 submissions. The papers cover topics such as: Ambient Services and Smart Environments; Sensor Networks and Artificial Intelligence; Activity and Situation Recognition; Ambient Intelligence in Education.

This two volume set (CCIS 1257 and 1258) constitutes the refereed proceedings of the 6th International Conference of Pioneering Computer Scientists, Engineers and Educators, ICPCSEE 2020 held in Taiyuan, China, in September 2020. The 98 papers presented in these two volumes were carefully reviewed and selected from 392 submissions. The papers are organized in topical sections: database, machine learning, network, graphic images, system, natural language processing, security, algorithm, application, and education. The chapter "Highly Parallel SPARQL Engine for RDF" is available open access under a Creative Commons Attribution 4.0 International License via link.springer.com.

The 6-volume set, comprising the LNCS books 12535 until 12540, constitutes the refereed proceedings of 28 out of the 45 workshops held at the 16th European Conference on Computer Vision, ECCV 2020. The conference was planned to take place in Glasgow, UK, during August 23-28, 2020, but changed to a virtual format due to the COVID-19 pandemic. The 249 full papers, 18 short papers, and 21 further contributions included in the workshop proceedings were carefully reviewed and selected from a total of 467 submissions. The papers deal with diverse computer vision topics. Part IV focusses on advances in image manipulation; assistive computer vision and robotics; and computer vision for UAVs.

The three-volume set LNCS 12305, 12306, and 12307 constitutes the refereed proceedings of the Third Chinese Conference on Pattern Recognition and Computer Vision, PRCV 2020, held

being conducted in various research laboratories and educational institutions. The included research works deal with estimated models and give resolutions to complex real-life issues. In the field of evolutionary computing and other domains of applications, such as, data mining and fuzzy logic, soft computing techniques play an incomparable role, where it successfully handles contemporary computationally intensive and complex problems that have usually appeared to be inflexible to traditional mathematical methods. Comprising the concepts and applications of soft computing with other emerging research domains, this book cherishes varieties of modern applications in the fields of natural language processing, image processing, biomedical engineering, communication, control systems, circuit design etc. .

Software methodologies, tools and techniques have become an ever more important part of our lives, and are crucial to the decision-making processes that affect us every day. This book presents papers from the 19th International Conference on New Trends in Intelligent Software Methodology Tools, and Techniques (SoMeT20), held in Kitakyushu, Japan from 22–24 September 2020. The SoMeT conferences bring together researchers and practitioners to share their original research results and experience of practical developments in software science and related new technologies, and this book explores new trends and theories that highlight the direction and development of intelligent software methodologies, tools and techniques. It covers newly developed techniques, enhanced methodologies, software related solutions and recently developed tools, as well as indicating the direction of future research, and the 40 revised papers included here have been selected by the SoMeT20 international reviewing committee on the basis of technical soundness, relevance, originality, significance, and clarity. The book is divided into 5 chapters: artificial intelligence techniques on software engineering, and requirement engineering; software methods for informatics, medical informatics and bio-medicine applications; applied software tools, techniques and related software engineering models; intelligent-software systems design, software quality, software evolution and validation techniques; and knowledge science and intelligent computing. Providing an overview of the state-of-the-art in software science and its supporting technology, this book will be of interest to all those working in the field.

The 4-volume set LNCS 13019, 13020, 13021 and 13022 constitutes the refereed proceedings of the 4th Chinese Conference on Pattern Recognition and Computer Vision, PRCV 2021, held in Beijing, China, in October-November 2021. The 201 full papers presented were carefully reviewed and selected from 513 submissions. The papers have been organized in the following topical sections: Object Detection, Tracking and Recognition; Computer Vision, Theories and Applications, Multimedia Processing and Analysis; Low-level Vision and Image Processing; Biomedical Image Processing and Analysis; Machine Learning, Neural Network and Deep Learning, and New Advances in Visual Perception and Understanding.

The three-volume set LNCS 11857, 11858, and 11859 constitutes the refereed proceedings of the Second Chinese Conference on Pattern Recognition and Computer Vision, PRCV 2019, held in Xi'an, China, in November 2019. The 165 revised full papers presented were carefully reviewed and selected from 412 submissions. The papers have been organized in the following topical sections: Part I: Object Detection, Tracking and Recognition, Part II: Image/Video Processing and Analysis, Part III: Data Analysis and Optimization.

Proceedings of the 22nd Engineering Applications of Neural Networks ConferenceEANN 2021Springer Nature

This book provides an introduction to recent advances in theory, algorithms and application of Boolean map distance for image processing. Applications include modeling what humans find salient or prominent in an image, and then using this for guiding smart image cropping, selective image filtering, image segmentation, image matting, etc. In this book, the authors present methods for both traditional and emerging saliency computation tasks, ranging from classical low-level tasks like pixel-level saliency detection to object-level tasks such as subitizing and salient object detection. For low-level tasks, the authors focus on pixel-level image processing approaches based on efficient distance transform. For object-level tasks, the authors propose data-driven methods using deep convolutional neural networks. The book includes both empirical and theoretical studies, together with implementation details of the proposed methods. Below are the key features for different types of readers. For computer vision and image processing practitioners: Efficient algorithms based on image distance transforms for two pixel-level saliency tasks; Promising deep learning techniques for two novel object-level saliency tasks; Deep neural network model pre-training with synthetic data; Thorough deep model analysis including useful visualization techniques and generalization tests; Fully reproducible with code, models and datasets available. For researchers interested in the intersection between digital topological theories and computer vision problems: Summary of theoretic findings and analysis of Boolean map distance; Theoretic algorithmic analysis; Applications in salient object detection and eye fixation prediction. Students majoring in image processing, machine learning and computer vision: This book provides up-to-date supplementary reading material for course topics like connectivity based image processing, deep learning for image processing; Some easy-to-implement algorithms for course projects with data provided (as links in the book); Hands-on programming exercises in digital topology and deep learning.

This 8-volumes set constitutes the refereed of the 25th International Conference on Pattern Recognition Workshops, ICPR 2020, held virtually in Milan, Italy and rescheduled to January 10 - 11, 2021 due to Covid-19 pandemic. The 416 full papers presented in these 8 volumes were carefully reviewed and selected from about 700 submissions. The 46 workshops cover a wide range of areas including machine learning, pattern analysis, healthcare, human behavior, environment, surveillance, forensics and biometrics, robotics and egovision, cultural heritage and document analysis, retrieval, and women at ICPR2020.

This two-volume set of LNCS 12509 and 12510 constitutes the refereed proceedings of the 15th International Symposium on Visual Computing, ISVC 2020, which was supposed to be held in San Diego, CA, USA in October 2020, took place virtually instead due to the COVID-19 pandemic. The 114 full and 4 short papers presented in these volumes were carefully reviewed and selected from 175 submissions. The papers are organized into the following topical sections: Part I: deep learning; segmentation; visualization; video analysis and event recognition; ST: computational bioimaging; applications; biometrics; motion and tracking; computer graphics; virtual reality; and ST: computer vision advances in geo-spatial applications and remote sensing Part II: object recognition/detection/categorization; 3D reconstruction; medical image analysis; vision for robotics; statistical pattern recognition; posters

This two-volume set of LNCS 11643 and LNCS 11644 constitutes - in conjunction with the volume LNAI 11645 - the refereed proceedings of the 15th International Conference on Intelligent Computing, ICIC

2019, held in Nanchang, China, in August 2019. The 217 full papers of the three proceedings volumes were carefully reviewed and selected from 609 submissions. The ICIC theme unifies the picture of contemporary intelligent computing techniques as an integral concept that highlights the trends in advanced computational intelligence and bridges theoretical research with applications. The theme for this conference is “Advanced Intelligent Computing Methodologies and Applications.” Papers related to this theme are especially solicited, including theories, methodologies, and applications in science and technology.

This book constitutes the thoroughly refereed proceedings of the Second International Conference on Machine Learning for Networking, MLN 2019, held in Paris, France, in December 2019. The 26 revised full papers included in the volume were carefully reviewed and selected from 75 submissions. They present and discuss new trends in deep and reinforcement learning, pattern recognition and classification for networks, machine learning for network slicing optimization, 5G system, user behavior prediction, multimedia, IoT, security and protection, optimization and new innovative machine learning methods, performance analysis of machine learning algorithms, experimental evaluations of machine learning, data mining in heterogeneous networks, distributed and decentralized machine learning algorithms, intelligent cloud-support communications, resource allocation, energy-aware communications, software defined networks, cooperative networks, positioning and navigation systems, wireless communications, wireless sensor networks, underwater sensor networks.

This 2-volume set constitutes the refereed proceedings of the 9th Iberian Conference on Pattern Recognition and Image Analysis, IbPRIA 2019, held in Madrid, Spain, in July 2019. The 99 papers in these volumes were carefully reviewed and selected from 137 submissions. They are organized in topical sections named: Part I: best ranked papers; machine learning; pattern recognition; image processing and representation. Part II: biometrics; handwriting and document analysis; other applications.

This conference proceeding LNCS 12203 constitutes the refereed proceedings of the 12th International Conference on Cross-Cultural Design, CCD 2020, held as part of HCI International 2020 in Copenhagen, Denmark in July 2020. The conference was held virtually due to the corona pandemic. The total of 1439 papers and 238 posters included in the 40 HCII 2020 proceedings volumes was carefully reviewed and selected from 6326 submissions. The regular papers of DAPI 2020, Distributed, Ambient and Pervasive Interactions, presented in this volume were organized in topical sections named: Design Approaches, Methods and Tools, Smart Cities and Landscapes, Well-being, Learning and Culture in Intelligent Environments and much more.

The rapid growth of the world population has resulted in an exponential expansion of both urban and agricultural areas. Identifying and managing such earthly changes in an automatic way poses a worth-addressing challenge, in which remote sensing technology can have a fundamental role to answer—at least partially—such demands. The recent advent of cutting-edge processing facilities has fostered the adoption of deep learning architectures owing to their generalization capabilities. In this respect, it seems evident that the pace of deep learning in the remote sensing domain remains somewhat lagging behind that of its computer vision counterpart. This is due to the scarce availability of ground truth information in comparison with other computer vision domains. In this book, we aim at advancing the state of the art in linking deep learning methodologies with remote sensing image processing by collecting 20 contributions from different worldwide scientists and laboratories. The book presents a wide range of methodological advancements in the deep learning field that come with different applications in the remote sensing landscape such as wildfire and postdisaster damage detection, urban forest mapping, vine disease and pavement marking detection, desert road mapping, road and building outline extraction, vehicle and vessel detection, water identification, and text-to-image matching.

This two-volume set constitutes the refereed proceedings of the 16th International Conference on Collaborative Computing: Networking, Applications, and Worksharing, CollaborateCom 2020, held in Shanghai, China, in October 2020. The 61 full papers and 16 short papers presented were carefully reviewed and selected from 211 submissions. The papers reflect the conference sessions as follows: Collaborative Applications for Network and E-Commerce; Optimization for Collaborate System; Cloud and Edge Computing; Artificial Intelligence; AI Application and Optimization; Classification and Recommendation; Internet of Things; Collaborative Robotics and Autonomous Systems; Smart Transportation.

This book constitutes the refereed proceedings of the 9th IAPR TC3 International Workshop on Artificial Neural Networks in Pattern Recognition, ANNPR 2020, held in Winterthur, Switzerland, in September 2020. The conference was held virtually due to the COVID-19 pandemic. The 22 revised full papers presented were carefully reviewed and selected from 34 submissions. The papers present and discuss the latest research in all areas of neural network-and machine learning-based pattern recognition. They are organized in two sections: learning algorithms and architectures, and applications.

This book gathers a collection of high-quality, peer-reviewed research papers presented at the International Conference on Intelligent Computing, Communication and Devices (ICCD 2018), which address three core dimensions of the intelligent sciences—intelligent computing, intelligent communication, and intelligent devices. Intelligent computing includes areas such as intelligent and distributed computing, intelligent grid and cloud computing, Internet of Things, soft computing and engineering applications, data mining and knowledge discovery, semantic and web technology, hybrid systems, agent computing, bioinformatics, and recommendation systems. In turn, intelligent communication is concerned with communication and network technologies, such as mobile broadband and all-optical networks, which are the key to groundbreaking advances in intelligent communication technologies. It includes communication hardware, software and networked intelligence, mobile technologies, machine-to-machine communication networks, speech and natural language processing, routing techniques and network analytics, wireless ad hoc and sensor networks, communications and information security, signal, image and video processing, network management, and traffic engineering. Lastly, intelligent devices refer to any equipment, instruments, or machines that have their own computing capability, and covers areas such as embedded systems, radiofrequency identification (RFID), radiofrequency microelectromechanical systems (RF MEMS), very large-scale integration (VLSI) design and electronic devices, analog and mixed-signal integrated circuit (IC) design and testing, microelectromechanical systems (MEMS) and microsystems, solar cells and photonics, nanodevices, single electron and spintronic devices, space electronics, and intelligent robotics.

The seven-volume set comprising LNCS volumes 8689-8695 constitutes the refereed proceedings of the 13th European Conference on Computer Vision, ECCV 2014, held in Zurich, Switzerland, in September 2014. The 363 revised papers presented were carefully reviewed and selected from 1444 submissions. The papers are organized in topical sections on tracking and activity recognition; recognition; learning and inference; structure from motion and feature matching; computational photography and low-level vision; vision; segmentation and saliency; context and 3D scenes; motion and 3D scene analysis; and poster sessions.

This book contains the proceedings of the 22nd EANN "Engineering Applications of Neural Networks" 2021 that comprise of research papers on both theoretical foundations and cutting-edge applications of artificial intelligence. Based on the discussed research areas, emphasis is given in advances of machine learning (ML) focusing on the following algorithms-approaches: Augmented ML, autoencoders, adversarial neural networks, blockchain-adaptive methods, convolutional neural networks, deep learning, ensemble methods, learning-federated learning, neural networks, recurrent -- long short-term memory. The application domains are related to: Anomaly detection, bio-medical AI, cyber-security, data fusion, e-learning, emotion recognition, environment, hyperspectral imaging, fraud detection, image analysis, inverse kinematics, machine vision, natural language, recommendation systems, robotics, sentiment analysis, simulation, stock market prediction.

Recent years have seen a vast development in various methodologies for object detection and feature extraction and recognition, both in theory and in practice. When processing images, videos, or other types of multimedia, one needs efficient solutions to perform fast and reliable processing. Computational intelligence is used for medical screening where the detection of disease symptoms is carried out, in prevention monitoring to detect suspicious behavior, in agriculture systems to help with growing plants and animal breeding, in transportation systems for the control of incoming and outgoing transportation, for unmanned vehicles to detect obstacles and avoid collisions, in optics and materials for the detection of surface damage, etc. In many cases, we use developed techniques which help us to recognize some special features. In the context of this innovative research on computational intelligence, the Special Issue “Advanced Computational Intelligence for Object Detection, Feature Extraction and Recognition in Smart Sensor Environments” present an excellent opportunity for the dissemination of recent results and achievements for further innovations and development. It is my pleasure to present this collection of excellent contributions to the research community. - Prof. Marcin Woźniak, Silesian University of Technology, Poland –

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