

Pixl Paper 2 Higher June 2014

The International Conference on Industrial, Engineering and Other Applications of Applied Intelligent Systems (IEA/AIE), always sponsored by the International Society of Applied Intelligence (ISAI), emphasizes applications of applied intelligent systems to solve real-life problems in all areas. It is held every year and has become one of the biggest and most important academic activities concerning the theory and applications of intelligent systems in the world. The IEA/AIE 2009 conference was hosted by the National University of Tainan and National University of Kaohsiung in Taiwan. This was the first time that the IEA/AIE conference was held in Taiwan. We received 286 papers from all parts of the world. Only 84 papers were selected for publication in this volume of LNAI proceedings. Each paper was reviewed by at least two anonymous referees to assure the high quality. We would like to express our sincere thanks to the Program Committee members and all the reviewers for their hard work, which helped us to select the highest quality papers for the conference. These papers highlight opportunities and challenges for the next generation of applied intelligence and reveal technological innovations in real applications. This six volume set LNCS 11063 – 11068 constitutes the thoroughly refereed conference proceedings of the 4th International Conference on Cloud Computing and Security, ICCCS 2018, held in Haikou, China, in June 2018. The 386 full papers of these six volumes were carefully reviewed and selected from 1743 submissions. The papers cover ideas and achievements in the theory and practice of all areas of inventive systems which includes control, artificial intelligence, automation systems, computing systems, electrical and informative systems. The six volumes are arranged according to the subject areas as follows: cloud computing, cloud security, encryption, information hiding, IoT security, multimedia forensics

This book is one out of 8 IAEG XII Congress volumes and deals with river basins, which are the focus of many hydraulic engineering and hydrogeological studies worldwide. Such studies examine river systems as both a resource of the fluvial environment, and also explore river-related hazards and risks. The contributions of researchers from different disciplines focus on: surface-groundwater exchanges, stream flow, stream erosion, river morphology and management, sediment transport regimes, debris flows, evaluation of water resources, dam operation and hydropower generation, flood risks and flood control, stream pollution and water quality management. The contributions include case studies for advancing field monitoring techniques, improving modeling and assessment of rivers and studies contributing to better management plans and policies for the river environment and water resources. The Engineering Geology for Society and Territory volumes of the IAEG XII Congress held in Torino from September 15-19, 2014, analyze the dynamic role of engineering geology in our changing world and build on the four main themes of the congress: environment, processes, issues and approaches. The congress topics and subject areas of the 8 IAEG XII Congress volumes are: Climate Change and Engineering Geology. Landslide Processes. River Basins, Reservoir Sedimentation and Water Resources. Marine and Coastal Processes. Urban Geology, Sustainable Planning and Landscape Exploitation. Applied Geology for Major Engineering Projects. Education, Professional Ethics and Public Recognition of Engineering Geology. Preservation of Cultural Heritage.

This book constitutes the refereed conference proceedings of the 8th International Conference on Image and Graphics, ICIG 2015 held in Tianjin, China, in August 2015. The 164 revised full papers and 6 special issue papers were carefully reviewed and selected from 339 submissions. The papers focus on various advances of theory, techniques and algorithms in the fields of images and graphics.

This book constitutes the thoroughly refereed post-workshop proceedings of the 11th International Workshop on Information Hiding, IH 2009, held in Darmstadt, Germany, in June 2009. The 19 revised full papers presented were carefully reviewed and selected from 55 submissions. The papers are organized in topical sections on steganography, steganalysis, watermarking, fingerprinting, hiding in unusual content, novel applications and forensics.

The refereed proceedings of the First Iberian Conference on Pattern Recognition and Image Analysis, IbPria 2003, held in Puerto de Andratx, Mallorca, Spain in June 2003. The 130 revised papers presented were carefully reviewed and selected from 185 full papers submitted. All current aspects of ongoing research in computer vision, image processing, pattern recognition, and speech recognition are addressed.

This volume includes extended and revised versions of a set of selected papers from the International Conference on Electric and Electronics (EEIC 2011), held on June 20-22, 2011, which is jointly organized by Nanchang University, Springer, and IEEE IAS Nanchang Chapter. The objective of EEIC 2011 Volume 4 is to provide a major interdisciplinary forum for the presentation of new approaches from Communication Systems and Information Technology, to foster integration of the latest developments in scientific research. 137 related topic papers were selected into this volume. All the papers were reviewed by 2 program committee members and selected by the volume editor Prof. Ming Ma. We hope every participant can have a good opportunity to exchange their research ideas and results and to discuss the state of the art in the areas of the Communication Systems and Information Technology.

This university-level reference work covers a range of remote sensing techniques that are useful for mapping and visualizing benthic environments on continental shelves. Chapters focus on overviews of the history and future of seafloor mapping techniques, cartographical visualisation and communication of seafloor mapping, and practical applications of new technologies. Seabed mapping is referenced by high-resolution seismic methods, sidescan sonar, multibeam bathymetry, satellite imagery, LiDAR, acoustic backscatter techniques, and soundscape ecology monitoring, use of autonomous underwater vehicles, among other methods. The wide breadth of subjects in this volume

provides diversified coverage of seafloor imaging. This collection of modern seafloor mapping techniques summarizes the state of the art methods for mapping continental shelves.

Invited papers -- DIAR: Advances in degradation modeling and processing / Mohamed Cheriet and Reza Farrahi Moghaddam -- Analysis for video coding: Moving it from the encoder to the decoder / Fernando Pereira -- Image restoration and enhancement -- A fast scheme for multiscale signal denoising / Vittoria Bruni, Benedetto Piccoli, and Domenico Vitulano -- Color scratches removal using human perception / Vittoria Bruni, Paola Ferrara, and Domenico Vitulano -- Self-similarity of images in the fourier domain, with applications to MRI / G.S. Mayer, Edward R. Vrscay, M.L. Lauzon, B. G. Goodyear, and J. R. Mitchell -- A simple scaling algorithm based on areas pixels / Alain Horé, François Deschênes, and Djemel Ziou -- A new method for sharpening color images using fuzzy approach / M. Wilscy and Madhu S. Nair -- Wavelet noise reduction based on energy features / Guoyi Fu, Ali Hojjat, and Alan Colchester --

The 2016 International Conference on Energy Science and Applied Technology (ESAT 2016) held on June 25-26 in Wuhan, China aimed to provide a platform for researchers, engineers, and academicians, as well as industrial professionals, to present their research results and development activities in energy science and engineering and its applied technology. The themes presented in Energy Science and Applied Technology ESAT 2016 are: Technologies in Geology, Mining, Oil and Gas; Renewable Energy, Bio-Energy and Cell Technologies; Energy Transfer and Conversion, Materials and Chemical Technologies; Environmental Engineering and Sustainable Development; Electrical and Electronic Technology, Power System Engineering; Mechanical, Manufacturing, Process Engineering; Control and Automation; Communications and Applied Information Technologies; Applied and Computational Mathematics; Methods and Algorithms Optimization; Network Technology and Application; System Test, Diagnosis, Detection and Monitoring; Recognition, Video and Image Processing.

This two volume set constitutes the refereed post-conference proceedings of the Second International Conference on Machine Learning and Intelligent Communications, MLICOM 2017, held in Weihai, China, in August 2017. The 143 revised full papers were carefully selected from 225 submissions. The papers are organized thematically in machine learning, intelligent positioning and navigation, intelligent multimedia processing and security, intelligent wireless mobile network and security, cognitive radio and intelligent networking, intelligent internet of things, intelligent satellite communications and networking, intelligent remote sensing, visual computing and three-dimensional modeling, green communication and intelligent networking, intelligent ad-hoc and sensor networks, intelligent resource allocation in wireless and cloud networks, intelligent signal processing in wireless and optical communications, intelligent radar signal processing, intelligent cooperative communications and networking.

This book provides an overview of research achievements by industry experts and academic scientists in the subject area of Optoelectronics Technology and Industry. It covers a broad field ranging from Laser Technology and Applications, Optical Communications, Optoelectronic Devices and Integration, Energy Harvesting, to Medical and Biological Applications. Authored by highly-regarded researchers, contributing a wealth of knowledge on Photonics and Optoelectronics, this comprehensive collection of papers offers insight into innovative technologies, recent advances and future trends needed to develop effective research and manage projects. Researchers will benefit considerably when applying the technical information covered in this book.

This volume includes papers presented at IIH-MSP 2017, the 13th International Conference on Intelligent Information Hiding and Multimedia Signal Processing, held on 12–15 August 2017 in Matsue, Shimane, Japan. The conference covered topics ranging from information hiding and security, and multimedia signal processing and networking, to bio-inspired multimedia technologies and systems. This volume focuses on subjects related to multimedia security and applications, wearable computing, Internet of Things (IoT) privacy and information security, biomedical system design and applications, emerging techniques and applications, soft computing and applications, applications of image encoding and rendering, and information hiding and its criteria. Updated with the latest research outcomes and findings, the papers presented appeal to researchers and students in the corresponding fields.

This two-volume set (CCIS 175 and CCIS 176) constitutes the refereed proceedings of the International Conference on Computer Education, Simulation and Modeling, CSEM 2011, held in Wuhan, China, in June 2011. The 148 revised full papers presented in both volumes were carefully reviewed and selected from a large number of submissions. The papers cover issues such as multimedia and its application, robotization and automation, mechatronics, computer education, modern education research, control systems, data mining, knowledge management, image processing, communication software, database technology, artificial intelligence, computational intelligence, simulation and modeling, agent based simulation, biomedical visualization, device simulation & modeling, object-oriented simulation, Web and security visualization, vision and visualization, coupling dynamic modeling theory, discretization method , and modeling method research.

This volume constitutes the refereed proceedings of the 9th International Conference on Energy Minimization Methods in Computer Vision and Pattern Recognition, EMMCVPR 2013, held in Lund, Sweden, in August 2013. The 26 revised full papers were carefully reviewed and selected from 40 submissions. The papers are organized in topical sections on Medical Imaging; Image Editing; 3D Reconstruction; Shape Matching; Scene Understanding; Segmentation; Superpixels; Statistical Methods and Learning.

This book constitutes the thoroughly refereed post-proceedings of the 6th International Workshop on Graphics Recognition, GREC 2005, held in Hong Kong, China, August 2005. The book presents 37 revised full papers together with a panel discussion report, organized in topical sections on engineering drawings vectorization and recognition, symbol

recognition, graphic image analysis, structural document analysis, sketching and online graphics recognition, curves and shape processing, and graphics recognition contest results.

The two volume set LNCS 8047 and 8048 constitutes the refereed proceedings of the 15th International Conference on Computer Analysis of Images and Patterns, CAIP 2013, held in York, UK, in August 2013. The 142 papers presented were carefully reviewed and selected from 243 submissions. The scope of the conference spans the following areas: 3D TV, biometrics, color and texture, document analysis, graph-based methods, image and video indexing and database retrieval, image and video processing, image-based modeling, kernel methods, medical imaging, mobile multimedia, model-based vision approaches, motion analysis, natural computation for digital imagery, segmentation and grouping, and shape representation and analysis.

This book constitutes the refereed proceedings of the 5th International Conference on Soft Computing in Data Science, SCDS 2019, held in Iizuka, Japan, in August 2019. The 30 revised full papers presented were carefully reviewed and selected from 75 submissions. The papers are organized in topical sections on ?information and customer analytics; visual data science; machine and deep learning; big data analytics; computational and artificial intelligence; social network and media analytics.

This book constitutes the refereed proceedings of the 10th Chinese Conference on Advances in Image and Graphics Technologies, IGTA 2015, held in Beijing, China, in June 2015. The 50 papers presented were carefully reviewed and selected from 138 submissions. They provide a forum for sharing new aspects of the progresses in the areas of image processing technology, image analysis and understanding, computer vision and pattern recognition, big data mining, computer graphics and VR, image technology application.

Genetic and Evolutionary Computing This volume of *Advances in Intelligent Systems and Computing* contains accepted papers presented at ICGEC 2013, the 7th International Conference on Genetic and Evolutionary Computing. The conference this year was technically co-sponsored by The Waseda University in Japan, Kaohsiung University of Applied Science in Taiwan, and VSB-Technical University of Ostrava. ICGEC 2013 was held in Prague, Czech Republic. Prague is one of the most beautiful cities in the world whose magical atmosphere has been shaped over ten centuries. Places of the greatest tourist interest are on the Royal Route running from the Powder Tower through Celetna Street to Old Town Square, then across Charles Bridge through the Lesser Town up to the Hradcany Castle. One should not miss the Jewish Town, and the National Gallery with its fine collection of Czech Gothic art, collection of old European art, and a beautiful collection of French art. The conference was intended as an international forum for the researchers and professionals in all areas of genetic and evolutionary computing. The main topics of ICGEC 2013 included Intelligent Computing, Evolutionary Computing, Genetic Computing, and Grid Computing.

This book is a printed edition of the Special Issue "Photon-Counting Image Sensors" that was published in *Sensors*

This volume includes extended and revised versions of a set of selected papers from the International Conference on Electric and Electronics (EEIC 2011) , held on June 20-22 , 2011, which is jointly organized by Nanchang University, Springer, and IEEE IAS Nanchang Chapter. The objective of EEIC 2011 Volume 2 is to provide a major interdisciplinary forum for the presentation of new approaches from Electrical engineering and controls, to foster integration of the latest developments in scientific research. 133 related topic papers were selected into this volume. All the papers were reviewed by 2 program committee members and selected by the volume editor Prof. Min Zhu. We hope every participant can have a good opportunity to exchange their research ideas and results and to discuss the state of the art in the areas of the Electrical engineering and controls.

This volume includes extended and revised versions of a set of selected papers from the International Conference on Electric and Electronics (EEIC 2011) , held on June 20-22 , 2011, which is jointly organized by Nanchang University, Springer, and IEEE IAS Nanchang Chapter. The objective of EEIC 2011 Volume 3 is to provide a major interdisciplinary forum for the presentation of new approaches from Electrical Power Systems and Computers, to foster integration of the latest developments in scientific research. 133 related topic papers were selected into this volume. All the papers were reviewed by 2 program committee members and selected by the volume editor Prof. Xiaofeng Wan. We hope every participant can have a good opportunity to exchange their research ideas and results and to discuss the state of the art in the areas of the Electrical Power Systems and Computers.

This book constitutes the refereed proceedings of the 8th Mexican Conference on Pattern Recognition, MCPR 2016, held in Guanajuato, Mexico, in June 2016. The 34 revised full papers presented were carefully reviewed and selected from 60 submissions. The papers are organized in topical sections on computer vision and image analysis; pattern recognition and artificial intelligent techniques; signal processing and analysis; and applications of pattern recognition.

This book constitutes the refereed proceedings of the 36th Computer Graphics International Conference, CGI 2019, held in Calgary, AB, Canada, in June 2019. The 30 revised full papers presented together with 28 short papers were carefully reviewed and selected from 231 submissions. The papers address topics such as: 3D reconstruction and rendering, virtual reality and augmented reality, computer animation, geometric modelling, geometric computing, shape and surface modelling, visual analytics, image processing, pattern recognition, motion planning, gait and activity biometric recognition, machine learning for graphics and applications in security, smart electronics, autonomous navigation systems, robotics, geographical information systems, and medicine and art.

The 30-volume set, comprising the LNCS books 12346 until 12375, constitutes the refereed proceedings of the 16th European Conference on Computer Vision, ECCV 2020,

which was planned to be held in Glasgow, UK, during August 23-28, 2020. The conference was held virtually due to the COVID-19 pandemic. The 1360 revised papers presented in these proceedings were carefully reviewed and selected from a total of 5025 submissions. The papers deal with topics such as computer vision; machine learning; deep neural networks; reinforcement learning; object recognition; image classification; image processing; object detection; semantic segmentation; human pose estimation; 3d reconstruction; stereo vision; computational photography; neural networks; image coding; image reconstruction; object recognition; motion estimation.

This book constitutes the thoroughly refereed post-conference proceedings of the 19th International Conference on Information Security Applications, WISA 2018, held on Jeju Island, Korea, in August 2018. The 11 revised full papers and 11 short papers presented in this volume were carefully reviewed and selected from 44 submissions. #The primary focus of WISA 2018 was on systems and network security including all other technical and practical aspects of security applications and also on the embedded, unmanned or autonomous systems and cyber physical systems in general.

This two-volume set LNCS 10954 and LNCS 10955 constitutes - in conjunction with the volume LNAI 10956 - the refereed proceedings of the 14th International Conference on Intelligent Computing, ICIC 2018, held in Wuhan, China, in August 2018. The 275 full papers and 72 short papers of the three proceedings volumes were carefully reviewed and selected from 632 submissions. The papers are organized in topical sections such as Neural Networks.- Pattern Recognition.- Image Processing.- Intelligent Computing in Robotics.- Intelligent Control and Automation.- Intelligent Data Analysis and Prediction.- Fuzzy Theory and Algorithms.- Supervised Learning.- Unsupervised Learning.- Kernel Methods and Supporting Vector Machines.- Knowledge Discovery and Data Mining.- Natural Language Processing and Computational Linguistics.- Gene Expression Array Analysis.- Systems Biology.- Computational Genomics.- Computational Proteomics.- Gene Regulation Modeling and Analysis.- Protein-Protein Interaction Prediction.- Next-Gen Sequencing and Metagenomics.- Structure Prediction and Folding.- Evolutionary Optimization for Scheduling.- High-Throughput Biomedical Data Integration and Mining.- Machine Learning Algorithms and Applications.- Heuristic Optimization Algorithms for Real-World Applications.- Evolutionary Multi-Objective Optimization and Its Applications.- Swarm Evolutionary Algorithms for Scheduling and Combinatorial.- Optimization.- Swarm Intelligence and Applications in Combinatorial Optimization.- Advances in Metaheuristic Optimization Algorithm.- Advances in Image Processing and Pattern Recognition Techniques.- AI in Biomedicine.- Bioinformatics.- Biometrics Recognition.- Information Security.- Virtual Reality and Human-Computer Interaction.- Healthcare Informatics Theory and Methods.- Intelligent Computing in Computer Vision.- Intelligent Agent and Web Applications.- Reinforcement Learning.- Machine Learning.- Modeling, Simulation, and Optimization of Biological Systems.- Biomedical Data Modeling and Mining.- Cheminformatics.- Intelligent Computing in Computational Biology.- Protein Structure and Function Prediction.- Biomarker Discovery.- Hybrid Computational Intelligence: Theory and Application in Bioinformatics, Computational Biology and Systems Biology.- IoT and Smart Data.- Intelligent Systems and Applications for Bioengineering.- Evolutionary Optimization: Foundations and Its Applications to Intelligent Data Analytics.- Protein and Gene Bioinformatics: Analysis, Algorithms and Applications.

This book constitutes the thoroughly refereed post-proceedings of the 7th International Workshop on Information Hiding, IH 2005, held in Barcelona, Spain in June 2005. The 28 revised full papers presented together with an invited talk were carefully selected from 90 papers submitted. The papers are organized in topical sections on anonymity, watermarking, theory, watermark attacks, steganography, hiding in unusual content, steganalysis, software watermarking, and fingerprinting.

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, 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 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.

This book constitutes the refereed proceedings of the Third International Conference on Distributed Computing in Sensor Systems, DCOSS 2007, held in Sante Fe, NM, USA in June 2007. It covers algorithms, applications, and systems. It bridges the gap between theory and practice and between the broader field of distributed computing and the specific issues arising in sensor networks and related systems.

This volume contains the proceedings of the thirteenth biennial International Conference on Information Processing in Medical Imaging (IPMI XIII), held on the campus of Northern Arizona University in Flagstaff, Arizona, in June 1993. This conference was the latest in a series of meetings where new developments in the acquisition, analysis and utilization of medical images are presented, discussed, dissected, and extended. Today IPMI is widely recognized as a preeminent international forum for presentation of cutting-edge research in medical imaging and imageanalysis. The volume contains the text of the papers presented orally atIPMI XIII. Over 100 manuscripts were submitted and critically reviewed, of which 35 were selected for presentation. In this volume they are arranged into nine categories: shape description with deformable models, abstractshape description, knowledge-based systems, neural networks, novel imaging methods, tomographic reconstruction, image sequences, statistical pattern recognition, and image quality.

This book constitutes the refereed proceedings of the Second International Conference on Smart Trends in Information Technology and Computer Communications, SmartCom 2017, held in Pune, India, in August 2017. The 38 revised papers presented were carefully reviewed and selected from 310 submissions. The papers address issues on smart and secure systems; smart and service computing; smart data and IT innovations.

From an environmental point of view, mountains are particularly sensitive and important for monitoring the state of health of our planet. Only through distribution of meteorological and atmospheric composition

monitoring points in mountain regions, coupled with modelling simulations, will we be able to thoroughly analyze complex pollutant transport mechanisms and better understand imminent global changes. The Himalayan-Karakoram range. For its elevation and geographic location, represents one of the ideal places for studying long-range pollutant transport systems on a regional scale and for monitoring changes index by mechanisms that act on global scale through monsoon circulation. The Ev-K2-CNR committee with this book reached its objective of creating a unique opportunity for dialogue between major environmental scientists and experts, highlighting the close relationship between diverse themes with a common underlying thread: in-depth comprehension of the environmental phenomena which are determining the health of our planet.

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