Image Segmentation Using Fuzzy Matlab Code

This book presents contributions in the field of computational intelligence for the purpose of image analysis. The chapters discuss how problems such as image segmentation, edge detection, face recognition, feature extraction, and image contrast enhancement can be solved using techniques such as genetic algorithms and particle swarm optimization. The contributions provide a multidimensional approach, and the book will be useful for researchers in computer science, electrical engineering, and information technology.

This book presents high-quality research papers presented at the 3rd International Conference on Intelligent Computing and Advances in Communication (ICAC 2020) organized by Siksha 'O' Anusandhan Deemed to be University, Bhubaneswar, Odisha, India, in November 2020. This book brings out the new advances and research results in the fields of theoretical, experimental, and applied signal and image processing, soft computing, networking, and antenna research. Moreover, it provides a comprehensive and systematic reference on the range of alternative conversion processes and technologies.

Advancements in digital technology continue to expand the image science field through the tools and techniques utilized to process two-dimensional images and videos. Image Processing: Concepts, Methodologies, Tools, and Applications presents a collection of research on this multidisciplinary field and the operation of multi-dimensional signals with systems that range from simple digital circuits to computers. This reference source is essential for researchers, academics, and students in the computer science, computer vision, and electrical engineering fields.

This book constitutes the proceedings of the Third International Conference on Computational Intelligence, Cyber Security, and Computational Models, ICC3 2017, which was held in Coimbatore, India, in December 2017. The 15 papers presented in this volume were carefully reviewed and selected from 63 submissions. They were organized in topical sections named: computational intelligence; cyber security; and computational models.

Advanced Machine Learning Technologies and Applications

Emerging Technology in Modelling and Graphics

Dental Image Analysis for Disease Diagnosis

A Systematic Guide to Write a Research Paper

Incorporating Applications and Innovations in Intelligent Systems XIX Proceedings of AI-2011, the Thirty-first SGAI International Conference on Innovative Techniques and Applications of Artificial Intelligence

Computational Intelligence, Cyber Security and Computational Models. Models and Techniques for Intelligent Systems and Automation

Although the technological boom has resulted in many advancements in modern society, it has also come with a few downfalls; most notably, the failure of new machines and equipment. This has prompted engineers to find suitable diagnostics tools to stop impending malfunctions and make working environments more efficient. Recent Advances in Applied Thermal Imaging for Industrial Applications is a critical reference source that outlines innovative analysis tools to combat systems failure in thermal imaging. Highlighting pertinent topics such as fuzzy c- means technique, human health diagnosis system, multidimensional processing, and optical analysis, this is an ideal resource for all engineers, practitioners, industry leaders, and researchers who are interested in staying up-to-date with advances in thermal imaging which prevents industrial system malfunctions.

Image Processing with MATLAB: Applications in Medicine and Biology explains complex, theory-laden topics in image processing through examples and MATLAB algorithms. It describes classical as well emerging areas in image processing and analysis. Providing many unique MATLAB codes and functions throughout, the book covers the theory of probability an

The international conference on Advances in Computing and Information technology (ACITY 2012) provides an excellent international forum for both academics and professionals for sharing knowledge and results in theory, methodology and applications of Computer Science and Information Technology. The Second International Conference on Advances in Computing and Information technology (ACITY 2012), held in Chennai, India, during July 13-15, 2012, covered a number of topics in all major fields of Computer Science and Information Technology including: networking and communications, network security and applications, web and internet computing, ubiquitous computing, algorithms, bioinformatics, digital image processing and pattern recognition, artificial intelligence, soft computing and applications. Upon a strength review process, a number of high-quality, presenting not only innovative ideas but also a founded evaluation and a strong argumentation of the same, were selected and collected in the present proceedings, that is composed of three different volumes.

Medical image analysis using advanced fuzzy set theoretic techniques is an exciting and dynamic branch of image processing. Since the introduction of fuzzy set theory, there has been an explosion of interest in advanced fuzzy set theories—such as intuitionistic fuzzy and Type II fuzzy set—that represent uncertainty in a better way. Medical Image Processing: Advanced Fuzzy Set Theoretic Techniques deals with the application of intuitionistic fuzzy and Type II fuzzy set theories for medical image analysis. Designed for graduate and doctorate students, this higher-level text: Provides a brief introduction to advanced fuzzy set theory, fuzzy/intuitionistic fuzzy aggregation operators, and distance/similarity measures Covers medical image enhancement using advanced fuzzy sets, including MATLAB®-based examples to increase contrast of the images Describes intuitionistic fuzzy and Type II fuzzy thresholding techniques that separate different regions/leukocyte types/abnormal lesions Demonstrates the clustering of unwanted lesions/regions even in the presence of noise by applying intuitionistic fuzzy clustering Highlights the edges of poorly illuminated images and uses intuitionistic fuzzy edge detection to find the edges of different regions Defines fuzzy mathematical morphology and explores its application using the Lukasiewicz operator, t-norms, and t-conorms Medical Image Processing: Advanced Fuzzy Set Theoretic Techniques is useful not only for students, but also for teachers, engineers, scientists, and those interested in the field of medical image analysis. A basic knowledge of fuzzy set is required, along with a solid understanding of mathematics and image processing.

Image Processing with MATLAB

Proceedings of ICAC 2020

Synergies of Soft Computing and Statistics for Intelligent Data Analysis

Fuzzy Logic and Information Fusion

Handbook of Research on Computational Intelligence for Engineering, Science, and Business

Proceedings of the Second International Conference on Advances in Computing and Information Technology (ACITY) July 13-15, 2012, Chennai, India - Volume 2

This book constitutes the proceedings of the 12th Mexican Conference on Pattern

Recognition, MCPR 2020, which was due to be held in Morelia, Mexico, in June 2020. The conference was held virtually due to the COVID-19 pandemic. The 31 papers presented in this volume were carefully reviewed and selected from 67 submissions. They were organized in the following topical sections: pattern recognition techniques; image processing and analysis; computer vision; industrial and medical applications of pattern recognition; natural language processing and recognition; artificial intelligence techniques and recognition.

This book offers a comprehensive introduction to advanced methods for image and video analysis and processing. It covers deraining, dehazing, inpainting, fusion, watermarking and stitching. It describes techniques for face and lip recognition, facial expression recognition, lip reading in videos, moving object tracking, dynamic scene classification, among others. The book combines the latest machine learning methods with computer vision applications, covering topics such as event recognition based on deep learning,dynamic scene classification based on topic model, person re-identification based on metric learning and behavior analysis. It also offers a systematic introduction to image evaluation criteria showing how to use them in different experimental contexts. The book offers an example-based practical guide to researchers, professionals and graduate students dealing with advanced problems in image analysis and computer vision.

This book provides a broad-ranging, but detailed overview of the basics of Fuzzy Logic. The fundamentals of Fuzzy Logic are discussed in detail, and illustrated with various solved examples. The book also deals with applications of Fuzzy Logic, to help readers more fully understand the concepts involved. Solutions to the problems are programmed using MATLAB 6.0, with simulated results. The MATLAB Fuzzy Logic toolbox is provided for easy reference.

With the technology innovations dentistry has witnessed in all its branches over the past three decades, the need for more precise diagnostic tools and advanced imaging methods has become mandatory across the industry. Recent advancements to imaging systems are playing an important role in efficient diagnoses, treatments, and surgeries. Computational Techniques for Dental Image Analysis provides innovative insights into computerized methods for automated analysis. The research presented within this publication explores pattern recognition, oral pathologies, and diagnostic processing. It is designed for dentists, professionals, medical educators, medical imaging technicians, researchers, oral surgeons, and students, and covers topics centered on easier assessment of complex cranio-facial tissues and the accurate diagnosis of various lesions at early stages.

Proceedings of the Second International Conference on Computer and Communication Technologies
Medical Image Processing
Handbook of Research on Machine Learning Innovations and Trends
Computer Vision in Robotics and Industrial Applications
Recent Advances in Applied Thermal Imaging for Industrial Applications
Proceedings of Recent Advances in Computer based Systems, Processes and Applications (NCRACSPA-2019), October21-22, 2019

This two-volume book contains research work presented at the First International Conference on Data Engineering and Communication Technology (ICDECT) held during March 10–11, 2016 at Lavasa, Pune, Maharashtra, India. The book discusses recent research technologies and applications in the field of Computer Science, Electrical and Electronics Engineering. The aim of the Proceedings is to provide cutting-edge developments taking place in the field data engineering and communication technologies which will assist the researchers and practitioners from both academia as well as industry to advance their field of study.

Some fuzzy technique based segmentation methods are studied and implemented and some fuzzy c means clustering based segmentation algorithms are developed in this thesis to suppress high and low uniform random noise. The reason for not developing fuzzy rule based segmentation method is that they are application dependent In many occasions, the images in real life are affected with noise. Fuzzy c means clustering based segmentation does not give good segmentation result under such condition. Various extension of the FCM method for segmentation are present in the literature. But most of them modify the objective function hence changing the basic FCM algorithm present in MATLAB toolboxes. Hence efforts have been made to develop FCM algorithm without modifying their objective function for better segmentation . The fuzzy technique based segmentation methods that are studied and developed are summarized here. (A) Fuzzy edge detection based segmentation: Two fuzzy edge detection methods are studied and implemented for segmentation: (i) FIS based edge detection and (ii) Fast multilevel fuzzy edge detector (FMFED). (i): The Fuzzy Inference system (FIS) based edge detector consists of some fuzzy inference rules which are defined in such a way that the FIS system output ("edges") is high only for those pixels belonging to edges in the input image. A robustness to contrast and lightning variations were also taken into consideration while developing these rules. The output of the FIS based edge detector is then compared with the existing Sobel, LoG and Canny edge detector results. The algorithm is seen to be application dependent and time

consuming. (ii) Fast Multilevel Fuzzy Edge Detector: To realise the fast and accurate detection of edges, the FMFED algorithm is proposed. It first enhances the image contrast by means of a fast multilevel fuzzy enhancement algorithm using simple transformation function based on two image thresholds. Second, the edges are extracted from the enha.

The papers in this volume are the refereed papers presented at AI-2011, the Thirty-first SGAI International Conference on Innovative Techniques and Applications of Artificial Intelligence, held in Cambridge in December 2011 in both the technical and the application streams. They present new and innovative developments and applications, divided into technical stream sections on Planning, Evolutionary Algorithms, Speech and Vision, and Machine Learning, followed by application stream sections on Knowledge Discovery and Data Mining, Machine Learning, Evolutionary Algorithms and AI in Action. The volume also includes the text of short papers presented as posters at the conference. This is the twenty-eighth volume in the Research and Development in Intelligent Systems series, which also incorporates the nineteenth volume in the Applications and Innovations in Intelligent Systems series. These series are essential reading for those who wish to keep up to date with developments in this important field.

The book focuses on the integration of intelligent communication systems, control systems, and devices related to all aspects of engineering and sciences. It contains high-quality research papers presented at the 2nd international conference, ICICCD 2017, organized by the Department of Electronics, Instrumentation and Control Engineering of University of Petroleum and Energy Studies, Dehradun on 15 and 16 April, 2017. The volume broadly covers recent advances of intelligent communication, intelligent control and intelligent devices. The work presented in this book is original research work, findings and practical development experiences of researchers, academicians, scientists and industrial practitioners.

Proceedings of CSI 2015

Proceedings of EAIT 2020

Biomedical Image Analysis and Mining Techniques for Improved Health Outcomes

Proceedings of IEM Graph 2018

A Problem-Solving Approach

Clustering Techniques for Image Segmentation

This book includes original, unpublished contributions presented at the Sixth International Conference on Emerging Applications of Information Technology (EAIT 2020), held at the University of Kalyani, Kalyani, West Bengal, India, on November 2020. The book covers the topics such as image processing, computer vision, pattern recognition, machine learning, data mining, big data and analytics, information security and privacy, wireless and sensor networks, and IoT. It will also include IoT application-related papers in pattern recognition, artificial intelligence, expert systems, natural language understanding, image processing, computer vision, applications in biomedical engineering, artificial neural networks, fuzzy logic, evolutionary optimization, data mining, Web intelligence, intelligent agent technology, virtual reality, and visualization.

In contrast to classical image analysis methods that employ "crisp" mathematics, fuzzy set techniques provide an elegant foundation and a set of rich methodologies for diverse image-processing tasks. However, a solid understanding of fuzzy processing requires a firm grasp of essential principles and background knowledge. Fuzzy Image Processing and Applications with MATLAB® presents the integral science and essential mathematics behind this exciting and dynamic branch of image processing, which is becoming increasingly important to applications in areas such as remote sensing, medical imaging, and video surveillance, to name a few. Many texts cover the use of crisp sets, but this book stands apart by exploring the explosion of interest and significant growth in fuzzy set image processing. The distinguished authors clearly lay out theoretical concepts and applications of fuzzy set theory and their impact on areas such as enhancement, segmentation, filtering, edge detection, content-based image retrieval, pattern recognition, and clustering. They describe all components of fuzzy, detailing preprocessing, threshold detection, and match-based segmentation. Minimize Processing Errors Using Dynamic Fuzzy Set Theory This book serves as a primer on MATLAB and demonstrates how to implement it in fuzzy image processing methods. It illustrates how the code can be used to improve calculations that help prevent or deal with imprecision—whether it is in the grey level of the image, geometry of an object, definition of an object's edges or boundaries, or in knowledge representation, object recognition, or image interpretation. The text addresses these considerations by applying fuzzy set theory to image thresholding, segmentation, edge detection, enhancement, clustering, color retrieval, clustering in pattern recognition, and other image processing operations. Highlighting key ideas, the authors present the experimental results of their own new fuzzy approaches and those suggested by different authors, offering data and insights that will be useful to teachers, scientists, and engineers, among others.

In recent years there has been a growing interest to extend classical methods for data analysis. The aim is to allow a more flexible modeling of phenomena such as uncertainty, imprecision or ignorance. Such extensions of classical probability theory and statistics are useful in many real-life situations, since uncertainties in data are not only present in the form of randomness --- various types of incomplete or subjective information have to be handled. About twelve years ago the idea of strengthening the dialogue between the various research communities in the field of data analysis was born and resulted in the International Conference Series on Soft Methods in Probability and Statistics (SMPS). This book gathers contributions presented at the SMPS'2012 held in Konstanz, Germany. Its aim is to present recent results illustrating new trends in intelligent data analysis. It gives a comprehensive overview of current research into the fusion of soft computing methods with probability and statistics. Synergies of both fields might improve intelligent data analysis methods in terms of robustness

to noise and applicability to larger datasets, while being able to efficiently obtain understandable solutions of real-world problems.

The brand new edition of IMAGE PROCESSING, ANALYSIS, AND MACHINE VISION is a robust text providing deep and wide coverage of the full range of topics encountered in the field of image processing and machine vision. As a result, it can serve undergraduates, graduates, researchers, and professionals looking for a readable reference. The book's encyclopedic coverage of topics is wide, and it can be used in more than one course (both image processing and machine vision classes). In addition, while advanced mathematics is not needed to understand basic concepts (making this a good choice for undergraduates), rigorous mathematical coverage is included for more advanced readers. It is also distinguished by its easy-to-understand algorithm descriptions of difficult concepts, and a wealth of carefully selected problems and examples. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

IC3T 2015, Volume 1

Clinical Nuclear Medicine Physics with MATLAB®

Pattern Recognition

Introduction to Fuzzy Logic using MATLAB

Intelligent Communication, Control and Devices

Brain Tumor MRI Image Segmentation Using Deep Learning Techniques

This volume comprises the select proceedings of the annual convention of the Computer Society of India. Divided into 10 topical volumes, the proceedings present papers on state-of-the-art research, surveys, and succinct reviews. The volumes cover diverse topics ranging from communications networks to big data analytics, and from system architecture to cyber security. This volume focuses on Sensors and Image Processing. The contents of this book will be useful to researchers and students alike.

This book constitutes the refereed proceedings of the First International Conference on Advanced Machine Learning Technologies and Applications, AMLTA 2012, held in Cairo, Egypt, in December 2012. The 58 full papers presented were carefully reviewed and selected from 99 intial submissions. The papers are organized in topical sections on rough sets and applications, machine learning in pattern recognition and image processing, machine learning in multimedia computing, bioinformatics and cheminformatics, data classification and clustering, cloud computing and recommender systems.

The book is about all aspects of computing, communication, general sciences and educational research covered at the Second International Conference on Computer & Communication Technologies held during 24-26 July 2015 at Hyderabad. It hosted by CMR Technical Campus in association with Division – V (Education & Research) CSI, India. After a rigorous review only quality papers are selected and included in this book. The entire book is divided into three volumes. Three volumes cover a variety of topics which include medical imaging, networks, data mining, intelligent computing, software design, image processing, mobile computing, digital signals and speech processing, video surveillance and processing, web mining, wireless sensor networks, circuit analysis, fuzzy systems, antenna and communication systems, biomedical signal processing and applications, cloud computing, embedded systems applications and cyber security and digital forensic. The readers of these volumes will be highly benefited from the technical contents of the topics.

The book covers cutting-edge and advanced research in modelling and graphics. Gathering high-quality papers presented at the First International Conference on Emerging Technology in Modelling and Graphics, held from 6 to 8 September 2018 in Kolkata, India, it addresses topics including: image processing and analysis, image segmentation, digital geometry for computer imaging, image and security, biometrics, video processing, medical imaging, and virtual and augmented reality.

First International Conference, AMLTA 2012, Cairo, Egypt, December 8-10, 2012, Proceedings

Applications in Medicine and Biology

Proceedings of the International Conference on CIDM, 20-21 December 2014

ICDECT 2016, Volume 2

Advances in Computing and Information Technology

Advances in Computer Vision and Information Technology

The contributed volume aims to explicate and address the difficulties and challenges that of seamless integration of the two core disciplines of computer science, i.e., computational intelligence and data mining. Data Mining aims at the automatic discovery of underlying non-trivial knowledge from datasets by applying intelligent analysis techniques. The interest in this research area has experienced a considerable growth in the last years due to two key factors: (a) knowledge hidden in organizations' databases can be exploited to improve strategic and managerial decision-making; (b) the large volume of data managed by organizations makes it impossible to carry out a manual analysis. The book addresses different methods and techniques of integration for enhancing the overall goal of data mining. The book helps to disseminate the knowledge about some innovative, active research directions in the field of data mining, machine and computational intelligence, along with some current issues and applications of related topics.

The use of MATLAB® in clinical Medical Physics is continuously increasing, thanks to new technologies and developments in the field. However, there is a lack of practical guidance for students, researchers, and medical professionals on how to incorporate it into their work. Focusing on the areas of diagnostic Nuclear Medicine and Radiation Oncology Imaging, this book provides a comprehensive treatment of the use of MATLAB in clinical Medical Physics, in Nuclear Medicine. It is an invaluable guide for medical physicists and researchers, in addition to postgraduates in medical physics or biomedical engineering, preparing for a career in the field. In the field of Nuclear Medicine, MATLAB enables quantitative analysis and the visualization of nuclear medical images of several modalities, such as Single Photon Emission Computed Tomography (SPECT), Positron Emission Tomography (PET), or a hybrid system where a Computed Tomography system is incorporated into a SPECT or PET system or similarly, a Magnetic Resonance

Imaging system (MRI) into a SPECT or PET system. Through a high-performance interactive software, MATLAB also allows matrix computation, simulation, quantitative analysis, image processing, and algorithm implementation. MATLAB can provide medical physicists with the necessary tools for analyzing and visualizing medical images. It is useful in creating imaging algorithms for diagnostic and therapeutic purposes, solving problems of image reconstruction, processing, and calculating absorbed doses with accuracy. An important feature of this application of MATLAB is that the results are completely reliable and are not dependent on any specific ?-cameras and workstations. The use of MATLAB algorithms can greatly assist in the exploration of the anatomy and functions of the human body, offering accurate and precise results in Nuclear Medicine studies. KEY FEATURES Presents a practical, case-based approach whilst remaining accessible to students Contains chapter contributions from subject area specialists across the field Includes real clinical problems and examples, with worked through solutions Maria Lyra Georgosopoulou, PhD, is a Medical Physicist and Associate Professor at the National and Kapodistrian University of Athens, Greece. Photo credit: The Antikythera Mechanism is the world's oldest known analog computer. It consisted of many wheels and discs that could be placed onto the mechanism for calculations. It is possible that the first algorithms and analog calculations in mathematics were implemented with this mechanism, invented in the early first centuries BC. It has been selected for the cover to demonstrate the importance of calculations in science.

This book constitutes the refereed proceedings of the 5th International Conference on Information Management and Big Data, SIMBig 2018, held in Lima, Peru, in September 2018. The 34 papers presented were carefully reviewed and selected from 101 submissions. The papers address issues such as data mining, artificial intelligence, Natural Language Processing, information retrieval, machine learning, web mining.

The latest trends in Information Technology represent a new intellectual paradigm for scientific exploration and visualization of scientific phenomena. The present treatise covers almost all the emerging technologies in the field. Academicians, engineers, industralists, scientists and researchers engaged in teaching, research and development of Computer Science and Information Technology will find the book useful for their future academic and research work. The present treatise comprising 225 articles broadly covers the following topics exhaustively. 01. Advance Networking and Security/Wireless Networking/Cyber Laws 02. Advance Software Computing 03. Artificial Intelligence/Natural Language Processing/ Neural Networks 04. Bioinformatics/Biometrics 05. Data Mining/E-Commerce/E-Learning 06. Image Processing, Content Based Image Retrieval, Medical and Bio-Medical Imaging, Wavelets 07. Information Processing/Audio and Text Processing/Cryptology, Steganography and Digital Watermarking 08. Pattern Recognition/Machine Vision/Image Motion, Video Processing 09. Signal Processing and Communication/Remote Sensing 10. Speech Processing & Recognition, Human Computer Interaction 11. Information and Communication Technology

To commemorate the 70th birthday of Professor Gaspar Mayor

Advanced Image and Video Processing Using MATLAB

6th to 8th July, 2015, Singapore

Proceedings of ICICCD 2017

Advances in Intelligent Computing and Communication

Information Management and Big Data

The book presents a collection of practical applications of image processing and analysis. Different vision systems are more often used among others in the automotive industry, pharmacy, military and police equipment, automated production and measurement systems. In each of these fields of technology, digital image processing and analysis module is a critical part of the process of building this type of system. The majority of books in the market deal with theoretical issues. However, this unique publication specially highlights industrial applications, especially industrial measurement applications. Along with its wide spectrum of image processing and analysis applications, this book is an interesting reference for both students and professionals. Contents:Theoretical Introduction to Image Reconstruction and Processing:Data Set Preparation for k-NN Classifier Using the Measure of Representativeness (Marcin Raniszewski)Segmentation Methods in the Selected Industrial Computer Vision Application (Anna Fabijanska and Dominik Sankowski)Line Fractional-Order Difference/Sum, Its Properties and an Application in Image Processing (Piotr Ostalczyk)Computer Vision in Robotics:Management Software for Distributed Mobile Robot System (Maciej Łaski, Sylwester Błaszczyk, Piotr Duch, Rafał Jachowicz, Adam Wulkiewicz, Dominik Sankowski and Piotr Ostalczyk)Advanced Vision Systems in Detection and Analysis of Characteristic Features of Objects (Adam Wulkiewicz, Rafał Jachowicz, Sylwester Błaszczyk, Piotr Duch, Maciej Łaski, Dominik Sankowski and Piotr Ostalczyk)Pattern Recognition Algorithms for the Navigation of Mobile Platform (Rafał Jachowicz, Sylwester Błaszczyk, Piotr Duch, Maciej Łaski, Adam Wulkiewicz, Dominik Sankowski and Piotr Ostalczyk)Partial Fractional-Order Difference in the Edge Detection (Piotr Duch, Rafał Jachowicz, Sylwester Błaszczyk, Maciej Łaski, Adam Wulkiewicz, Piotr Ostalczyk and Dominik Sankowski)Application of Fractional-Order Derivative for Edge Detection in Mobile Robot System (Sylwester Błaszczyk, Rafał Jachowicz, Piotr Duch, Maciej Łaski, Adam Wulkiewicz, Piotr Ostalczyk and Dominik Sankowski)Vision Based Human-Machine Interfaces: Visem Recognition (Krzysztof Ślot, Agnieszka Owczarek and Maria Janczyk)Industrial Applications of Computer Vision in Process Tomography, Material Science and Temperature Control:Hybrid Boundary Element Method Applied for Diffusion Tomography Problems (Jan Sikora, Maciej Pańczyk and Paweł Wieleba)Two-phase Gas-Liquid Flow Structures and Phase Distribution Determination Based on 3D Electrical Capacitance Tomography Visualization (Robert Banasiak, Radosław Wajman, Tomasz Jaworski, Paweł Fiderek, Jacek Nowakowski and Henryk Fidos)Tomographic Visualization of Dynamic Industrial Solid Transporting and Storage Systems (Zbigniew Chaniecki, Krzysztof Grudzień and Andrzej Romanowski)Tomography Data Processing for Multiphase Industrial Process Monitoring (Krzysztof Grudzień, Zbigniew Chaniecki, Andrzej Romanowski, Jacek Nowakowski and Dominik Sankowski)Dedicated 3D Image Processing Methods for the Analysis of X-Ray Tomography Data: Case Study of Materials Science (Laurent Babout and Marcin Janaszewski)Selected Algorithms of Quantitative Image Analysis for Measurements of Properties

Characterizing Interfacial Interactions at High Temperatures (Krzysztof Strzecha, Anna Fabijańska, Tomasz Koszmider and Dominik Sankowski)Theoretical Introduction to Image Reconstruction for Capacitance Process Tomography (Radosław Wajman, Krzysztof Grudzien, Robert Banasiak, Andrzej Romanowski, Zbigniew Chaniecki and Dominik Sankowski)Infra-Red Thermovision in Surface Temperature Control System (Jacek Kucharski, Tomasz Jaworski, Andrzej Frączyk and Piotr Urbanek)Medical and Other Applications of Computer Vision:The Computer Evaluation of Surface Color Changes in Cultivated Plants Influence by Different Environmental Factors (Joanna Sekulska-Nalewajko and Jarosław Gocławski)Various Approaches to Processing and Analysis of Images Obtained from Immunoenzymatic Visualization of Secretory Activity with ELISPOT Method (Wojciech Bieniecki and Szymon Grabowski)Image Processing and Analysis Algorithms for Assessment and Diagnosis of Brain Diseases (Anna Fabijanska and Tomasz Węglinski)Computer Systems for Studying Dynamic Properties of Materials at High Temperatures (Marcin Bąkała, Rafał Wojciechowski and Dominik Sankowski) Readership: Researchers, professionals and academics in image analysis, machine perception/computer vision, software engineering and fuzzy logic. Keywords:Image Processing;Computer Vision;Robotics;Pattern Recognition;Fuzzy Logic;Process Tomography;Mobile Robots

Continuous improvements in technological applications have allowed more opportunities to develop automated systems. This not only leads to higher success in smart data analysis, but it increases the overall probability of technological progression. The Handbook of Research on Machine Learning Innovations and Trends is a key resource on the latest advances and research regarding the vast range of advanced systems and applications involved in machine intelligence. Highlighting multidisciplinary studies on decision theory, intelligent search, and multi-agent systems, this publication is an ideal reference source for professionals and researchers working in the field of machine learning and its applications.

Using the same strategy for the needs of image processing and pattern recognition, scientists and researchers have turned to computational intelligence for better research throughputs and end results applied towards engineering, science, business and financial applications. Handbook of Research on Computational Intelligence for Engineering, Science, and Business discusses the computation intelligence approaches, initiatives and applications in the engineering, science and business fields. This reference aims to highlight computational intelligence as no longer limited to computing-related disciplines and can be applied to any effort which handles complex and meaningful information.

This book presents the workings of major clustering techniques along with their advantages and shortcomings. After introducing the topic, the authors illustrate their modified version that avoids those shortcomings. The book then introduces four modified clustering techniques, namely the Optimized K-Means (OKM), Enhanced Moving K-Means-1(EMKM-1), Enhanced Moving K-Means-2(EMKM-2), and Outlier Rejection Fuzzy C-Means (ORFCM). The authors show how the OKM technique can differentiate the empty and zero variance cluster, and the data assignment procedure of the K-mean clustering technique is redesigned. They then show how the EMKM-1 and EMKM-2 techniques reform the data-transferring concept of the Adaptive Moving K-Means (AMKM) to avoid the centroid trapping problem. And that the ORFCM technique uses the adaptable membership function to moderate the outlier effects on the Fuzzy C-meaning clustering technique. This book also covers the working steps and codings of quantitative analysis methods. The results highlight that the modified clustering techniques generate more homogenous regions in an image with better shape and sharp edge preservation. Showcases major clustering techniques, detailing their advantages and shortcomings; Includes several methods for evaluating the performance of segmentation techniques; Presents several applications including medical diagnosis systems, satellite imaging systems, and biometric systems.

Image Processing: Concepts, Methodologies, Tools, and Applications
5th International Conference, SIMBig 2018, Lima, Peru, September 3–5, 2018, Proceedings
Sensors and Image Processing
7th WACBE World Congress on Bioengineering 2015
Computational Techniques for Dental Image Analysis
Proceedings of the International Conference on Data Engineering and Communication Technology

This volume publishes the proceedings of the WACBE World Congress on Bioengineering 2015 (WACBE 2015), which was be held in Singapore, from 6 to 8 July 2015. The World Association for Chinese Biomedical Engineers (WACBE) organizes this World Congress biannually. Our past congresses have brought together many biomedical engineers from over the world to share their experiences and views on the future development of biomedical engineering. The 7th WACBE World Congress on Bioengineering 2015 in Singapore continued to offer such a networking platform for all biomedical engineers. Hosted by the Biomedical Engineering Society (Singapore) and the Department of Biomedical Engineering, National University of Singapore, the congress covered all related areas in bioengineering.

This book provides an overview of computational approaches to medical image examination and analysis in oral radiology, utilizing dental radiograph to detect and diagnose dental caries in cases of decayed teeth. Coverage includes basic image processing techniques; approaches for Region of Interest extraction and analysis; and the role of computational clustering techniques for segmentation of teeth and dental caries. The book also presents a novel multiphase level set method for automatic segmentation of dental radiographs.

Brain Tumor MRI Image Segmentation Using Deep Learning Techniques offers a description of deep learning approaches used for the segmentation of brain tumors. The book demonstrates core concepts of deep learning algorithms by using diagrams, data tables and examples to illustrate brain tumor segmentation. After introducing basic concepts of deep learning-based

brain tumor segmentation, sections cover techniques for modeling, segmentation and properties. A focus is placed on the application of different types of convolutional neural networks, like single path, multi path, fully convolutional network, cascade convolutional neural networks, Long Short-Term Memory - Recurrent Neural Network and Gated Recurrent Units, and more. The book also highlights how the use of deep neural networks can address new questions and protocols, as well as improve upon existing challenges in brain tumor segmentation. Provides readers with an understanding of deep learning-based approaches in the field of brain tumor segmentation, including preprocessing techniques Integrates recent advancements in the field, including the transformation of low-resolution brain tumor images into super-resolution images using deep learning-based methods, single path Convolutional Neural Network based brain tumor segmentation, and much more Includes coverage of Long Short-Term Memory (LSTM) based Recurrent Neural Network (RNN), Gated Recurrent Units (GRU) based Recurrent Neural Network (RNN), Generative Adversarial Networks (GAN), Auto Encoder based brain tumor segmentation, and Ensemble deep learning Model based brain tumor segmentation Covers research Issues and the future of deep learning-based brain tumor segmentation

Every second, users produce large amounts of image data from medical and satellite imaging systems. Image mining techniques that are capable of extracting useful information from image data are becoming increasingly useful, especially in medicine and the health sciences. Biomedical Image Analysis and Mining Techniques for Improved Health Outcomes addresses major techniques regarding image processing as a tool for disease identification and diagnosis, as well as treatment recommendation. Highlighting current research intended to advance the medical field, this publication is essential for use by researchers, advanced-level students, academicians, medical professionals, and technology developers. An essential addition to the reference material available in the field of medicine, this timely publication covers a range of applied research on data mining, image processing, computational simulation, data visualization, and image retrieval.

Fuzzy Image Processing and Applications with MATLAB
Hybrid Metaheuristics for Image Analysis
Study and Development of Some Novel Image Segmentation Techniques
Third International Conference, ICC3 2017, Coimbatore, India, December 14-16, 2017, Proceedings
Recent Advances in Computer Based Systems, Processes and Applications
Advanced Techniques for IoT Applications

This was the first conference organized by the school of Computer Science Engineering in VIT-AP University campus with the cumulative efforts of all the faculty members. The proceedings discusses recent advancements and novel ideas in areas of interest. It covers topics such as advances in computer based systems, processes and applications

This book offers a timely report on key theories and applications of soft-computing. Written in honour of Professor Gaspar Mayor on his 70th birthday, it primarily focuses on areas related to his research, including fuzzy binary operators, aggregation functions, multi-distances, and fuzzy consensus/decision models. It also discusses a number of interesting applications such as the implementation of fuzzy mathematical morphology based on Mayor-Torrens t-norms. Importantly, the different chapters, authored by leading experts, present novel results and offer new perspectives on different aspects of Mayor's research. The book also includes an overview of evolutionary fuzzy systems, a topic that is not one of Mayor's main areas of interest, and a final chapter written by the Spanish pioneer in fuzzy logic, Professor E. Trillas. Computer and decision scientists, knowledge engineers and mathematicians alike will find here an authoritative overview of key soft-computing concepts and techniques.

Research and Development in Intelligent Systems XXVIII
12th Mexican Conference, MCPR 2020, Morelia, Mexico, June 24–27, 2020, Proceedings
Concepts, Methodologies, Tools, and Applications
Advanced Fuzzy Set Theoretic Techniques
Computational Intelligence in Data Mining - Volume 2
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