

Image Texture Feature Extraction Using Glcm Approach

Developing an effective computer-aided diagnosis (CAD) system for lung cancer is of great clinical importance and can significantly increase the patient's chance for survival. For this reason, CAD systems for lung cancer have been investigated in a large number of research studies. A typical CAD system for lung cancer diagnosis is composed of four main processing steps: segmentation of the lung fields, detection of nodules inside the lung fields, segmentation of the detected nodules, and diagnosis of the nodules as benign or malignant. This book overviews the current state-of-the-art techniques that have been developed to implement each of these CAD processing steps. Overviews the latest state-of-the-art diagnostic CAD systems for lung cancer imaging and diagnosis Offers detailed coverage of 3D and 4D image segmentation Illustrates unique fully automated detection systems coupled with 4D Computed Tomography (CT) Written by authors who are world-class researchers in the biomedical imaging sciences Includes extensive references at the end of each chapter to enhance further study Ayman El-Baz is a professor, university scholar, and chair of the Bioengineering Department at the University of Louisville, Louisville, Kentucky. He earned his bachelor's and master's degrees in electrical engineering in 1997 and 2001, respectively. He earned his doctoral degree in electrical engineering from the University of Louisville in 2006. In 2009, he was named a Coulter Fellow for his contributions to the field of biomedical translational research. He has 17 years of hands-on experience in the fields of bio-imaging modeling and noninvasive computer-assisted diagnosis systems. He has authored or coauthored more than 500 technical articles (132 journals, 23 books, 57 book chapters, 211 refereed-conference papers, 137 abstracts, and 27 U.S. patents and disclosures). Jasjit S. Suri is an innovator, scientist, a visionary, an industrialist, and an internationally known world leader in biomedical engineering. He has spent over 25 years in the field of biomedical engineering/devices and its management. He received his doctorate from the University of Washington, Seattle, and his business management sciences degree from Weatherhead School of Management, Case Western Reserve University, Cleveland, Ohio. He was awarded the President's Gold Medal in 1980 and named a Fellow of the American Institute of Medical and Biological Engineering for his outstanding contributions in 2004. In 2018, he was awarded the Marquis Life Time Achievement Award for his outstanding contributions and dedication to medical imaging and its management.

In texture classification the goal is to assign an unknown sample texture image to one of a set of known texture classes. Important applications include industrial and bio medical surface inspection, for example for defects and disease, ground classification and segmentation of satellite or aerial imagery, segmentation of textured regions in document analysis, and content-based access to image databases. However, despite many potential areas of application for texture analysis in industry there is only a limited number of successful examples. A major problem is that textures in the real world are often not uniform, due to changes in orientation, scale or other visual appearance. In addition, the degree of computational complexity of many of the proposed texture measures is very high. A wide variety of techniques for describing image texture have been proposed in literature. This work is an analysis of texture image classification in different classifier under two different features called wavelet and statistical. The result shows that image classification with wavelet feature and feed forward neural network gives better result. This volume constitutes the refereed proceedings of the 12th Pacific Rim Conference on Artificial Intelligence, PRICAI 2012, held in Kuching, Malaysia, in September 2012. The 60 revised full papers presented together with 2 invited papers, 22 short papers, and 11 poster papers in this volume were carefully reviewed and selected from 240 submissions. The topics roughly include AI foundations, applications of AI, cognition and intelligent interactions, computer-aided education, constraint and search, creativity support, decision theory, evolutionary computation, game playing, information retrieval and extraction, knowledge mining and acquisition, knowledge representation and logic, linked open data and semantic web, machine learning and data mining, multimedia and AI, natural language processing, robotics, social intelligence, vision and perception, web and text mining, web and knowledge-based system.

The five volume set CCIS 224-228 constitutes the refereed proceedings of the International conference on Applied Informatics and Communication, ICAIC 2011, held in Xi'an, China in August 2011. The 446 revised papers presented were carefully reviewed and selected from numerous submissions. The papers cover a broad range of topics in computer science and interdisciplinary applications including control, hardware and software systems, neural computing, wireless networks, information systems, and image processing.

This book is a collection of best selected research papers presented at International Conference on Intelligent and Smart Computing in Data Analytics (ISDA 2020), held at K L University, Guntur, Andhra Pradesh, India. The primary focus is to address issues and developments in advanced computing, intelligent models and applications, smart technologies and applications. It includes topics such as artificial intelligence and machine learning, pattern recognition and analysis, computational intelligence, signal and image processing, bioinformatics, ubiquitous computing, genetic fuzzy systems, hybrid evolutionary algorithms, nature-inspired smart hybrid systems, Internet of things, industrial IoT, health informatics, human-computer interaction and social network analysis. The book presents innovative work by leading academics, researchers and experts from industry. .

Discusses major aspects of content-based image retrieval (CBIR) using current technologies and applications within the artificial intelligence (AI) field.

The proceedings includes cutting-edge research articles from the Fourth International Conference on Signal and Image Processing (ICSIP), which is organised by Dr. N.G.P. Institute of Technology, Kalapatti, Coimbatore. The Conference provides academia and industry to discuss and present the latest technological advances and research results in the fields of theoretical, experimental, and application of signal, image and video processing. The book provides latest and most informative content from engineers and scientists in signal, image and video processing from around the world, which will benefit the future research community to work in a more cohesive and collaborative way.

Machine Learning in Bio-Signal Analysis and Diagnostic Imaging presents original research on the advanced analysis and classification techniques of biomedical signals and images that cover both supervised and unsupervised machine learning models, standards, algorithms, and their applications, along with the difficulties and challenges faced by healthcare professionals in analyzing biomedical signals and diagnostic images. These intelligent recommender systems are designed based on machine learning, soft computing, computer vision, artificial intelligence and data mining techniques. Classification and clustering techniques, such as PCA, SVM, techniques, Naive Bayes, Neural Network, Decision trees, and Association Rule Mining are among the approaches presented. The design of high accuracy decision support systems assists and eases the job of healthcare practitioners and suits a variety of applications. Integrating Machine

Learning (ML) technology with human visual psychometrics helps to meet the demands of radiologists in improving the efficiency and quality of diagnosis in dealing with unique and complex diseases in real time by reducing human errors and allowing fast and rigorous analysis. The book's target audience includes professors and students in biomedical engineering and medical schools, researchers and engineers. Examines a variety of machine learning techniques applied to bio-signal analysis and diagnostic imaging Discusses various methods of using intelligent systems based on machine learning, soft computing, computer vision, artificial intelligence and data mining Covers the most recent research on machine learning in imaging analysis and includes applications to a number of domains

This book presents best selected research papers presented at the First International Conference on Integrated Intelligence Enable Networks and Computing (IIENC 2020), held from May 25 to May 27, 2020, at the Institute of Technology, Gopeshwar, India (Government Institute of Uttarakhand Government and affiliated to Uttarakhand Technical University). The book includes papers in the field of intelligent computing. The book covers the areas of machine learning and robotics, signal processing and Internet of things, big data and renewable energy sources.

This book features papers presented at IIH-MSP 2018, the 14th International Conference on Intelligent Information Hiding and Multimedia Signal Processing. The scope of IIH-MSP included information hiding and security, multimedia signal processing and networking, and bio-inspired multimedia technologies and systems. The book discusses subjects related to massive image/video compression and transmission for emerging networks, advances in speech and language processing, recent advances in information hiding and signal processing for audio and speech signals, intelligent distribution systems and applications, recent advances in security and privacy for multimodal network environments, multimedia signal processing, and machine learning. Presenting the latest research outcomes and findings, it is suitable for researchers and students who are interested in the corresponding fields. IIH-MSP 2018 was held in Sendai, Japan on 26–28 November 2018. It was hosted by Tohoku University and was co-sponsored by the Fujian University of Technology in China, the Taiwan Association for Web Intelligence Consortium in Taiwan, and the Swinburne University of Technology in Australia, as well as the Fujian Provincial Key Laboratory of Big Data Mining and Applications (Fujian University of Technology) and the Harbin Institute of Technology Shenzhen Graduate School in China.

Soft Computing Based Medical Image Analysis presents the foremost techniques of soft computing in medical image analysis and processing. It includes image enhancement, segmentation, classification-based soft computing, and their application in diagnostic imaging, as well as an extensive background for the development of intelligent systems based on soft computing used in medical image analysis and processing. The book introduces the theory and concepts of digital image analysis and processing based on soft computing with real-world medical imaging applications. Comparative studies for soft computing based medical imaging techniques and traditional approaches in medicine are addressed, providing flexible and sophisticated application-oriented solutions. Covers numerous soft computing approaches, including fuzzy logic, neural networks, evolutionary computing, rough sets and Swarm intelligence Presents transverse research in soft computing formation from various engineering and industrial sectors in the medical domain Highlights challenges and the future scope for soft computing based medical analysis and processing techniques

This book constitutes the refereed proceedings of the 4th International Conference on Soft Computing, Intelligent Systems, and Information Technology, ICSIIT 2015, held in Bali, Indonesia, in March 2015. The 34 revised full papers presented together with 19 short papers, one keynote and 2 invited talks were carefully reviewed and selected from 92 submissions. The papers cover a wide range of topics related to intelligence in the era of Big Data, such as fuzzy logic and control system; genetic algorithm and heuristic approaches; artificial intelligence and machine learning; similarity-based models; classification and clustering techniques; intelligent data processing; feature extraction; image recognition; visualization techniques; intelligent network; cloud and parallel computing; strategic planning; intelligent applications; and intelligent systems for enterprise, government and society.

This 5-volume set (CCIS 214-CCIS 218) constitutes the refereed proceedings of the International Conference on Computer Science, Environment, Ecoinformatics, and Education, CSEE 2011, held in Wuhan, China, in July 2011. The 525 revised full papers presented in the five volumes were carefully reviewed and selected from numerous submissions. The papers are organized in topical sections on information security, intelligent information, neural networks, digital library, algorithms, automation, artificial intelligence, bioinformatics, computer networks, computational system, computer vision, computer modelling and simulation, control, databases, data mining, e-learning, e-commerce, e-business, image processing, information systems, knowledge management and knowledge discovering, multimedia and its application, management and information system, mobile computing, natural computing and computational intelligence, open and innovative education, pattern recognition, parallel and computing, robotics, wireless network, web application, other topics connecting with computer, environment and ecoinformatics, modeling and simulation, environment restoration, environment and energy, information and its influence on environment, computer and ecoinformatics, biotechnology and biofuel, as well as biosensors and bioreactor.

This volume contains 74 papers presented at SCI 2016: First International Conference on Smart Computing and Informatics. The conference was held during 3-4 March 2017, Visakhapatnam, India and organized communally by ANITS, Visakhapatnam and supported technically by CSI Division V – Education and Research and PRF, Vizag. This volume contains papers mainly focused on applications of advanced intelligent techniques to video processing, medical imaging, machine learning, sensor technologies, and network security.

This book constitutes the refereed proceedings of the First International Conference on Digital Image Processing and Pattern Recognition, DPPR 2011, held in Tirunelveli, India,

in September 2011. The 48 revised full papers were carefully reviewed and selected from about 400 submissions. The conference brought together leading researchers, engineers and scientists in the domain of Digital Image Processing and Pattern Recognition. The papers cover all theoretical and practical aspects of the field and present new advances and current research results in two tracks, namely: digital image processing and pattern recognition, and computer science, engineering and information technology. The book describes various texture feature extraction approaches and texture analysis applications. It introduces and discusses the importance of texture features, and describes various types of texture features like statistical, structural, signal-processed and model-based. It also covers applications related to texture features, such as facial imaging. It is a valuable resource for machine vision researchers and practitioners in different application areas.

This useful textbook/reference presents an accessible primer on the fundamentals of image texture analysis, as well as an introduction to the K-views model for extracting and classifying image textures. Divided into three parts, the book opens with a review of existing models and algorithms for image texture analysis, before delving into the details of the K-views model. The work then concludes with a discussion of popular deep learning methods for image texture analysis. Topics and features: provides self-test exercises in every chapter; describes the basics of image texture, texture features, and image texture classification and segmentation; examines a selection of widely-used methods for measuring and extracting texture features, and various algorithms for texture classification; explains the concepts of dimensionality reduction and sparse representation; discusses view-based approaches to classifying images; introduces the template for the K-views algorithm, as well as a range of variants of this algorithm; reviews several neural network models for deep machine learning, and presents a specific focus on convolutional neural networks. This introductory text on image texture analysis is ideally suitable for senior undergraduate and first-year graduate students of computer science, who will benefit from the numerous clarifying examples provided throughout the work.

This book – in conjunction with the volumes LNAI 8589 and LNBI 8590 – constitutes the refereed proceedings of the 10th International Conference on Intelligent Computing, ICIC 2014, held in Taiyuan, China, in August 2014. The 92 papers of this volume were carefully reviewed and selected from numerous submissions. The papers are organized in topical sections such as evolutionary computation and learning; swarm intelligence and optimization; machine learning; social and natural computing; neural networks; biometrics recognition; image processing; information security; virtual reality and human-computer interaction; knowledge discovery and data mining; signal processing; pattern recognition; biometric system and security for intelligent computing.

It is with great pleasure that we present to you a collection of over 200 high quality technical papers from more than 10 countries that were presented at the Biomed 2008. The papers cover almost every aspect of Biomedical Engineering, from artificial intelligence to biomechanics, from medical informatics to tissue engineering. They also come from almost all parts of the globe, from America to Europe, from the Middle East to the Asia-Pacific. This set of papers presents to you the current research work being carried out in various disciplines of Biomedical Engineering, including new and innovative researches in emerging areas. As the organizers of Biomed 2008, we are very proud to be able to come-up with this publication. We owe the success to many individuals who worked very hard to achieve this: members of the Technical Committee, the Editors, and the International Advisory Committee. We would like to take this opportunity to record our thanks and appreciation to each and every one of them. We are pretty sure that you will find many of the papers illuminating and useful for your own research and study. We hope that you will enjoy yourselves going through them as much as we had enjoyed compiling them into the proceedings. Assoc. Prof. Dr. Noor Azuan Abu Osman Chairperson, Organising Committee, Biomed 2008

This book covers both basic and high-level concepts relating to the intelligent computing paradigm and data sciences in the context of distributed computing, big data, data sciences, high-performance computing and Internet of Things. It is becoming increasingly important to develop adaptive, intelligent computing-centric, energy-aware, secure and privacy-aware systems in high-performance computing and IoT applications. In this context, the book serves as a useful guide for industry practitioners, and also offers beginners a comprehensive introduction to basic and advanced areas of intelligent computing. Further, it provides a platform for researchers, engineers, academics and industrial professionals around the globe to showcase their recent research concerning recent trends. Presenting novel ideas and stimulating interesting discussions, the book appeals to researchers and practitioners working in the field of information technology and computer science.

Many aspects of modern life have become personalized, yet healthcare practices have been lagging behind in this trend. It is now becoming more common to use big data analysis to improve current healthcare and medicinal systems, and offer better health services to all citizens. Applying Big Data Analytics in Bioinformatics and Medicine is a comprehensive reference source that overviews the current state of medical treatments and systems and offers emerging solutions for a more personalized approach to the healthcare field. Featuring coverage on relevant topics that include smart data, proteomics, medical data storage, and drug design, this publication is an ideal resource for medical professionals, healthcare practitioners, academicians, and researchers interested in the latest trends and techniques in personalized medicine.

This book provides readers with a selection of high-quality chapters that cover both theoretical concepts and practical applications of image feature detectors and descriptors. It serves as reference for researchers and practitioners by featuring survey chapters and research contributions on image feature detectors and descriptors. Additionally, it emphasizes several keywords in both theoretical and practical aspects of image feature extraction. The keywords include acceleration of feature detection and extraction, hardware implantations, image segmentation, evolutionary algorithm, ordinal measures, as well as visual speech recognition.

The five-volume set LNCS 11536, 11537, 11538, 11539, and 11540 constitutes the proceedings of the 19th International Conference on Computational Science, ICCS 2019, held

in Faro, Portugal, in June 2019. The total of 65 full papers and 168 workshop papers presented in this book set were carefully reviewed and selected from 573 submissions (228 submissions to the main track and 345 submissions to the workshops). The papers were organized in topical sections named: Part I: ICCS Main Track Part II: ICCS Main Track; Track of Advances in High-Performance Computational Earth Sciences: Applications and Frameworks; Track of Agent-Based Simulations, Adaptive Algorithms and Solvers; Track of Applications of Matrix Methods in Artificial Intelligence and Machine Learning; Track of Architecture, Languages, Compilation and Hardware Support for Emerging and Heterogeneous Systems Part III: Track of Biomedical and Bioinformatics Challenges for Computer Science; Track of Classifier Learning from Difficult Data; Track of Computational Finance and Business Intelligence; Track of Computational Optimization, Modelling and Simulation; Track of Computational Science in IoT and Smart Systems Part IV: Track of Data-Driven Computational Sciences; Track of Machine Learning and Data Assimilation for Dynamical Systems; Track of Marine Computing in the Interconnected World for the Benefit of the Society; Track of Multiscale Modelling and Simulation; Track of Simulations of Flow and Transport: Modeling, Algorithms and Computation Part V: Track of Smart Systems: Computer Vision, Sensor Networks and Machine Learning; Track of Solving Problems with Uncertainties; Track of Teaching Computational Science; Poster Track ICCS 2019 Chapter "Comparing Domain-decomposition Methods for the Parallelization of Distributed Land Surface Models" is available open access under a Creative Commons Attribution 4.0 International License via link.springer.com.

Focusing on feature extraction while also covering issues and techniques such as image acquisition, sampling theory, point operations and low-level feature extraction, the authors have a clear and coherent approach that will appeal to a wide range of students and professionals. Ideal module text for courses in artificial intelligence, image processing and computer vision Essential reading for engineers and academics working in this cutting-edge field Supported by free software on a companion website

"This book includes state-of-the-art methodologies that introduce biomedical imaging in decision support systems and their applications in clinical practice"--Provided by publisher.

In the medical field, there is a constant need to improve professionals' abilities to provide prompt and accurate diagnoses. The use of image and pattern recognizing software may provide support to medical professionals and enhance their abilities to properly identify medical issues. Medical Image Processing for Improved Clinical Diagnosis provides emerging research exploring the theoretical and practical aspects of computer-based imaging and applications within healthcare and medicine. Featuring coverage on a broad range of topics such as biomedical imaging, pattern recognition, and medical diagnosis, this book is ideally designed for medical practitioners, students, researchers, and others in the medical and engineering fields seeking current research on the use of images to enhance the accuracy of medical prognosis.

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.

Texture Feature Extraction Techniques for Image Recognition Springer Nature

In this paper, a new content-based image retrieval (CBIR) scheme is proposed in neutrosophic (NS) domain. For this task, RGB images are first transformed to three subsets in NS domain and then segmented.

Intelligent prediction and decision support systems are based on signal processing, computer vision (CV), machine learning (ML), software engineering (SE), knowledge based systems (KBS), data mining, artificial intelligence (AI) and include several systems developed from the study of expert systems (ES), genetic algorithms (GA), artificial neural networks (ANN) and fuzzy-logic systems The use of automatic decision support systems in design and manufacturing industry, healthcare and commercial software development systems has the following benefits: Cost savings in companies, due to employment of expert system technology. Fast decision making, completion of projects in time and development of new products. Improvement in decision making capability and quality. Usage of Knowledge database and Preservation of expertise of individuals Eases complex decision problems. Ex: Diagnosis in Healthcare To address the issues and challenges related to development, implementation and application of automatic and intelligent prediction and decision support systems in domains such as manufacturing, healthcare and software product design, development and optimization, this book aims to collect and publish wide ranges of quality articles such as original research contributions, methodological reviews, survey papers, case studies and/or reports covering intelligent systems, expert prediction systems, evaluation models, decision support systems and Computer Aided Diagnosis (CAD).

This book constitutes the thoroughly refereed post-conference proceedings of the Second International Conference on Industrial IoT Technologies and Applications, IoT 2017, held in Wuhu, China, in March 2017. The volume contains 25 papers carefully reviewed and selected from 41 submissions focusing on topics such as big data, cloud computing, Internet of things, areas of control, mobile computing, and security.

This book constitutes the refereed proceedings of the International Conference Eco-friendly Computing and Communication Systems, ICECCS 2012, held in Kochi, Kerala, India, in August 2012. The 50 revised full papers presented were carefully reviewed and selected from 133 submissions. The papers are organized in topical sections on energy efficient software system and applications; wireless communication systems; green energy technologies; image and signal processing; bioinformatics and emerging technologies; secure and reliable systems; mathematical modeling and scientific computing; pervasive computing and applications.

The two volume set LNCS 9256 and 9257 constitutes the refereed proceedings of the 16th International Conference on Computer Analysis of Images and Patterns, CAIP 2015, held in Valletta, Malta, in September 2015. The 138 papers presented were carefully reviewed and selected from numerous submissions. CAIP 2015 is the sixteenth in the CAIP series of biennial

international conferences devoted to all aspects of computer vision, image analysis and processing, pattern recognition, and related fields.

The book contains high quality papers presented in the Fifth International Conference on Innovations in Electronics and Communication Engineering (ICIECE 2016) held at Guru Nanak Institutions, Hyderabad, India during 8 and 9 July 2016. The objective is to provide the latest developments in the field of electronics and communication engineering specially the areas like Image Processing, Wireless Communications, Radar Signal Processing, Embedded Systems and VLSI Design. The book aims to provide an opportunity for researchers, scientists, technocrats, academicians and engineers to exchange their innovative ideas and research findings in the field of Electronics and Communication Engineering.

This book presents state-of-the-art methodologies and a comprehensive introduction to the recognition and representation of species and individual animals based on their physiological and phenotypic appearances, biometric characteristics, and morphological image patterns. It provides in-depth coverage of this emerging area, with an emphasis on the design and analysis techniques used in visual animal biometrics-based recognition systems. The book offers a comprehensive introduction to visual animal biometrics, addressing a range of recent advances and practices like sensing, feature extraction, feature selection and representation, matching, indexing of feature sets, and animal biometrics-based multimodal systems. It provides authoritative information on all the major concepts, as well as highly specific topics, e.g. the identification of cattle based on their muzzle point image pattern and face images to prevent false insurance claims, or the monitoring and registration of animals based on their biometric features. As such, the book provides a sound platform for understanding the Visual Animal Biometrics paradigm, a vital catalyst for researchers in the field, and a valuable guide for professionals. In addition, it can help both private and public organizations adapt and enhance their classical animal recognition systems.

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.

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