Brain Tumor Detection Using Matlab Code Alsfar

GRACE LUIS

Proceedings of Data Analytics and Management Springer Nature
This book comprises the select peer-reviewed proceedings of the 3rd International Conference on Information Technology (InCITe-2023). It aims to provide a comprehensive and broad-spectrum picture of state-of-the-art research and development in decision intelligence, deep learning, machine learning, artificial intelligence, data science, and enabling technologies for IoT, blockchain, and other futuristic computational technologies. It covers various topics that span cutting-edge, collaborative technologies and areas of computation. The content would serve as a rich knowledge repository on information & communication technologies, neural networks, fuzzy systems, natural language processing, data mining & warehousing, big data analytics, cloud computing, security, social networks, and intelligence, decision-making, and modeling, information systems, and IT architectures. This book provides a valuable resource for those in academia and industry.
Brain Tumor MRI Image Segmentation Using Deep Learning Techniques Springer Nature
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
Two Day International Conference on Data Science and Information Ecosystem’21 CRC Press
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.
Brain Tumor Classification Using Convolutional Neural Network with Neutrosophy, Super-Resolution and SVM Academic Press
The abnormal growth of the cells in the brain region leads to the formation of tumors. At present, the treatments for brain tumors are radiation and surgery which are suggested by physicians. Radiation treatment slows down the spreading capability of tumors in other brain regions and slowly kills the affected brain cells. Surgery removes the affected brain cells in the brain and through this, the spreading to other regions in the brain is

prevented. For the case of proper surgery, the location identification of the abnormal cells in the brain region is important. If it is not properly and completely removed from the brain, then few affected cells skipped from the surgery affect the other cells in the brain. Brain tumors are classified into either benign or malignant based on their capability of spreading. The benign are abnormal tissues that are not spreading to nearby tissues and they can be cured by proper medication suggested by the physician. Malignant is an also abnormal tissue that spreads or affects the nearby tissues and it can be cured by medication. The only solution is to remove these affected tumor regions through proper surgery by a physician. The affected malignant tumor cells region is manually detected by a physician or radiologist in the conventional method. This is a time-consuming and error-probe methodology due to manual intervention. This limitation is overcome by proposing the computer-aided automatic approach for brain tumor image classification.

Artificial Intelligence and Evolutionary Algorithms in Engineering Systems Springer Nature

In this book, you will learn how to use Scikit-Learn, TensorFlow, Keras, NumPy, Pandas, Seaborn, and other libraries to implement brain tumor classification and detection with machine learning using Brain Tumor dataset provided by Kaggle. this dataset contains five first order features: Mean (the contribution of individual pixel intensity for the entire image), Variance (used to find how each pixel varies from the neighboring pixel 0, Standard Deviation (the deviation of measured Values or the data from its mean), Skewness (measures of symmetry), and Kurtosis (describes the peak of e.g. a frequency distribution). it also contains eight second order features: Contrast, Energy, ASM (Angular second moment), Entropy, Homogeneity, Dissimilarity, Correlation, and Coarseness. In this project, various methods and functionalities related to machine learning and deep learning are covered. Here is a summary of the process: Data Preprocessing: Loaded and preprocessed the dataset using various techniques such as feature scaling, encoding categorical variables, and splitting the dataset into training and testing sets.; Feature Selection: Implemented feature selection techniques such as SelectKBest, Recursive Feature Elimination, and Principal Component Analysis to select the most relevant features for the model.; Model Training and Evaluation: Trained and evaluated multiple machine learning models such as Random Forest, AdaBoost, Gradient Boosting, Logistic Regression, and Support Vector Machines using cross-validation and hyperparameter tuning. Implemented ensemble methods like Voting Classifier and Stacking Classifier to combine the predictions of multiple models. Calculated evaluation metrics such as accuracy, precision, recall, F1-score, and mean squared error for each model. Visualized the predictions and confusion matrix for the models using plotting techniques.; Deep Learning Model Building and Training: Built deep learning models using architectures such as MobileNet and ResNet50 for image classification tasks. Compiled and trained the models using appropriate loss functions, optimizers, and metrics. Saved the trained models and their training history for future use.; Visualization and Interaction: Implemented methods to plot the training loss and accuracy curves during model training. Created interactive widgets for displaying prediction results and confusion matrices. Linked the selection of prediction options in combo boxes to trigger the corresponding prediction and visualization functions.; Throughout the process, various libraries and frameworks such as scikit-learn, TensorFlow, and Keras are used to perform the tasks efficiently. The overall goal was to train models, evaluate their performance, visualize the results, and provide an interactive experience for the user to explore different prediction options.

Brain Tumor Detection Using Soft Computing Techniques IGI Global

Brain tumor detection is a critical area of research that involves identifying the presence, location, and type of brain tumor in patients. Soft computing techniques have been increasingly used to improve the accuracy of brain tumor detection by analyzing medical images, particularly magnetic resonance imaging (MRI). Soft computing methods involve a combination of fuzzy logic, artificial neural networks (ANN), support vector machines (SVM), decision trees, genetic algorithms, particle swarm optimization (PSO), and deep learning. These methods enable feature extraction, classification, and segmentation of brain tumor images to aid in computer-aided diagnosis (CAD). In addition, radiomics and texture analysis are employed to extract quantitative data from medical images to identify patterns and characteristics of tumors that can aid in diagnosis. Soft computing techniques have demonstrated higher accuracy rates in brain tumor detection compared to traditional techniques, thus enhancing the potential for earlier and more accurate diagnosis and improved patient outcomes.

Handbook of Artificial Intelligence in Biomedical Engineering Springer

This book highlights the latest research presented at the International Conference on Translational Medicine and Imaging (ICTMI) 2017. This event brought together the world’s leading scientists, engineers and clinicians from a wide range of disciplines in the field of medical imaging. Bioimaging has continued to evolve across a wide spectrum of applications from diagnostics and personalized therapy to the mechanistic understanding of biological processes, and as a result there is ever-increasing demand for more robust methods and their integration with clinical and molecular data. This book presents a number of these methods.

Bio-inspired Neurocomputing Springer

Advances in smart healthcare systems (SHS) and artificial intelligence (AI) domains highlight the need for ICT systems that aim not only to improve human quality of life but improve safety too. SHS bring together concepts and methodologies from various fields, such as communications and network systems, computer science, life sciences and healthcare. The well-known smart healthcare paradigms are; real-time monitoring devices, computer-aided surgery devices, telemedicine devices, population-based care devices, personalized medicine from a machine learning perspective, ubiquities intelligent computing, expert decision support systems, Health 2.0 and Internet of Things (IoT). This book presents models for the deployment of intelligent computing, information, and networking technologies to aid in preventing disease, improving the quality of care and lowering overall cost. It also discusses the potential role of the AI paradigms, computational intelligence and machine learning techniques which are used in developing the SHS. It will provide examples of potential usage of such technology in smart healthcare and and bio-medical systems. It will be an important read for researchers and professionals working in smart healthcare systems, as well as those working in the individual areas of networks, artificial intelligence and healthcare who want to see how an interdisciplinary approach can enhance the current technology.

Innovations in Electronics and Communication Engineering Springer Nature

This book contains the best selected research papers presented at ICTCS 2020: Fifth International Conference on Information and Communication Technology for Competitive Strategies. The conference was held at Jaipur, Rajasthan, India during 11–12 December 2020. The book covers state-of-the-art as well as emerging topics pertaining to ICT and effective strategies for its implementation for engineering and managerial applications. This book contains papers mainly focused on ICT for computation, algorithms and data analytics and IT security.

Networking Technologies in Smart Healthcare Meem Publishers

The book is a collection of high-quality peer-reviewed research papers presented in Proceedings of International Conference on Artificial Intelligence and Evolutionary Algorithms in Engineering Systems (ICAEES 2014) held at Noorul Islam Centre for Higher Education, Kumaracoil, India. These research papers provide the latest developments in the broad area of use of artificial intelligence and evolutionary algorithms in engineering systems. The book discusses wide variety of industrial, engineering and scientific applications of the emerging techniques. It presents invited papers from the inventors/originators of new applications and advanced technologies.

Machine Learning for Healthcare Independent Author

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

Intelligent Brain Tumor Segmentation and Detection Springer

The two-volume set CCIS 827 and 828 constitutes the thoroughly refereed proceedings of the Third International Conference on Next Generation Computing Technologies, NGCT 2017, held in Dehradun, India, in October 2017. The 135 full papers presented were carefully reviewed and selected from 948 submissions. There were organized in topical sections named: Smart and Innovative Trends in Communication Protocols and Standards; Smart and Innovative Trends in Computational Intelligence and Data Science; Smart and Innovative Trends in Image Processing and Machine Vision; Smart Innovative Trends in Natural Language Processing for Indian Languages; Smart Innovative Trends in Security and Privacy.

Advancements in Science and Technology for Healthcare, Agriculture, and Environmental Sustainability Springer Nature

The book provides insights into International Conference on Intelligent Systems and Signal Processing (ISSP 2017) held at G.H. Patel College of Engineering & Technology, Gujarat, India during March 24-25, 2017. The book comprises contributions by the research scholars and academicians covering the topics in signal processing and communication engineering, applied electronics and emerging technologies, computer vision and machine learning, big data and cloud computing and advanced intelligent power electronics and drives systems. The main emphasis of the book is on dissemination of information, experience and research results on the current topics of interest through in-depth discussions and contribution of researchers from all over world. The book is useful for research community, academicians, industrialists and post graduate students across the globe.

Innovative Smart Healthcare and Bio-Medical Systems Springer Nature

This book gathers outstanding papers presented at the International Conference on Data Science and Applications (ICDSA 2021), organized by Soft Computing Research Society (SCRS) and Jadavpur University, Kolkata, India, from April 10 to 11, 2021. It covers theoretical and empirical developments in various areas of big data analytics, big data technologies, decision tree learning, wireless communication, wireless sensor networking, bioinformatics and systems, artificial neural networks, deep learning, genetic algorithms, data mining, fuzzy logic, optimization algorithms, image processing, computational intelligence in civil engineering, and creative computing.

Handbook of Research on Information Security in Biomedical Signal Processing Springer

Recent advancements and innovations in medical image and data processing have led to a need for robust and secure mechanisms to transfer images and signals over the internet and maintain copyright protection. The Handbook of Research on Information Security in Biomedical Signal Processing provides emerging research on security in biomedical data as well as techniques for accurate reading and further processing. While highlighting topics such as image processing, secure access, and watermarking, this publication explores advanced models and algorithms in information security in the modern healthcare system. This publication is a vital resource for academicians, medical professionals, technology developers, researchers, students, and practitioners seeking current research on intelligent techniques in medical data security.

Human Brain and Spinal Cord Tumors: From Bench to Bedside. Volume 1 CRC Press

This study focuses on the development of intelligent approaches for the effective segmentation and detection of brain tumors. Leveraging advanced algorithms and artificial intelligence, researchers aim to enhance the accuracy and efficiency of brain tumor detection in medical imaging data. By employing cutting-edge techniques in image processing and machine learning, the study seeks to identify and isolate tumor regions within brain scans, enabling early and precise diagnosis. The intelligent segmentation methods employed aim to delineate tumor boundaries with greater accuracy, facilitating more targeted treatment planning and monitoring of tumor progression. The research also explores the integration of intelligent systems into existing medical workflows, potentially reducing the burden on healthcare professionals and improving patient outcomes. The ultimate goal of this investigation is to contribute to the development of more effective and timely interventions for patients with brain tumors, thereby advancing the field of medical imaging and personalized healthcare. In this groundbreaking research on "Intelligent Brain Tumor Segmentation and Detection," experts delve into the realm of cutting-edge technologies and innovative methodologies. Utilizing state-of-the-art deep learning models, neural networks, and computer vision techniques, the study aims to revolutionize the field of medical imaging for brain tumors. Through a vast

dataset of brain scans, researchers strive to develop intelligent algorithms capable of automatically and accurately identifying various types of brain tumors. The implementation of these intelligent approaches is expected to significantly reduce the time and effort required for tumor segmentation, aiding healthcare professionals in making timely and well-informed decisions regarding treatment strategies.

Data Management, Analytics and Innovation CRC Press

The book is a collection of best selected research papers presented at 6th International Conference on Innovations in Electronics and Communication Engineering at Guru Nanak Institutions Hyderabad, India. The book presents works from researchers, technocrats and experts about latest technologies in electronic and communication engineering. The book covers various streams of communication engineering like signal processing, VLSI design, embedded systems, wireless communications, and electronics and communications in general. The authors have discussed the latest cutting edge technology and the volume will serve as a reference for young researchers.

Image Processing with MATLAB Springer

This book presents the latest findings in the areas of data management and smart computing, big data management, artificial intelligence and data analytics, along with advances in network technologies. It addresses state-of-the-art topics and discusses challenges and solutions for future development. Gathering original, unpublished contributions by scientists from around the globe, the book is mainly intended for a professional audience of researchers and practitioners in academia and industry.

Explainable Artificial Intelligence for Smart Cities CRC Press

Advances in Computerized Analysis in Clinical and Medical Imaging book is devoted for spreading of knowledge through the publication of scholarly research, primarily in the fields of clinical & medical imaging. The types of chapters consented include those that cover the development and implementation of algorithms and strategies based on the use of geometrical, statistical, physical, functional to solve the following types of problems, using medical image datasets: visualization, feature extraction, segmentation, image-guided surgery, representation of pictorial data, statistical shape analysis, computational physiology and telemedicine with medical images. This book highlights annotations for all the medical and clinical imaging researchers' a fundamental advances of clinical and medical image analysis techniques. This book will be a good source for all the medical imaging and clinical research professionals, outstanding scientists, and educators from all around the world for network of knowledge sharing. This book will comprise high quality disseminations of new ideas, technology focus, research results and discussions on the evolution of Clinical and Medical image analysis techniques for the benefit of both scientific and industrial developments. Features: Research aspects in clinical and medical image processing Human Computer Interaction and interface in imaging diagnostics Intelligent Imaging Systems for effective analysis using machine learning algorithms Clinical and Scientific Evaluation of Imaging Studies Computer-aided disease detection and diagnosis Clinical evaluations of new technologies Mobility and assistive devices for challenged and elderly people This book serves as a reference book for researchers and doctoral students in the clinical and medical imaging domain including radiologists. Industries that manufacture imaging modality systems and develop optical systems would be especially interested in the challenges and solutions provided in the book. Professionals and practitioners in the medical and clinical imaging may be benefited directly from authors' experiences.

Communication and Computing Systems Archers & Elevators Publishing House

This book gathers outstanding research papers presented at the International Conference on Information and Communication Technology for Development (ICICTD 2022), held on July 29–30, 2022, at the Institute of Information and Communication Technology (IICT), Khulna University of Engineering & Technology (KUET), Khulna, Bangladesh. The topics covered are ICT in health care, ICT in e-commerce, e-governance, collective intelligence, soft computing, optimization, cloud computing, machine learning, intelligent software, robotics, data science, data security, big data analytics and IoT, information systems, computer network, algorithms, and natural language processing.

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