

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/377860297>

Multiscale-Based Multi-Modal Image Classification of Brain Tumor Using Deep Learning Method

Conference Paper · November 2023

DOI: 10.1109/ICSSSS8085.2023.10407395

CITATIONS

0

READS

4

5 authors, including:



R. Rajasree

PSN Institute of technology and science

19 PUBLICATIONS 77 CITATIONS

SEE PROFILE



Sushita Kanagaraj

Vels University

20 PUBLICATIONS 159 CITATIONS

SEE PROFILE



Kundukattil Haritha

St. Joseph's College of Bangalore

7 PUBLICATIONS 28 CITATIONS

SEE PROFILE



All



ADVANCED SEARCH

Conferences > 2023 9th International Confer... ?

Multiscale-Based Multi-Modal Image Classification of Brain Tumor Using Deep Learning Method

Publisher: IEEE

Cite This



PDF

R. Rajasree ; K. Sushita ; K. Haritha ; Annamalai Solayappan ; N. Shanmugasundaram All Authors •••

11

Full
Text Views

Abstract

Document Sections

- I. Introduction
- II. MATERIALS AND METHODS
- III. CNN-UNET LAYER STRUCTURE
- IV. Experiment Setup
- » V Experiment Results
- Show Full Outline ▾

Authors

Figures

References

Keywords

Metrics

More Like This

Abstract:Magnetic Resonance Imaging (MRI) serves as a widely employed diagnostic method for evaluating glioma-type brain lesions. This study introduces an automated segmentation a... **View more**

► Metadata

Abstract:

Magnetic Resonance Imaging (MRI) serves as a widely employed diagnostic method for evaluating glioma-type brain lesions. This study introduces an automated segmentation approach for glioma-type tumors in MRI scans, employing U-NET Convolutional Neural Networks (CNN) with compact 3x3 kernel sizes. The adoption of small kernels serves to combat overfitting in deep neural networks and reduces the computational complexity associated with numerous network weights. To address the significant spatial and structural variations within brain tumors, a deep learning semantic segmentation technique known as the Multi-Scale Multimodal Convolutional Neural Network (SSMCNN) is employed, accommodating multiple MRI modalities. The primary objective of this methodology is the precise identification and separation of tumor categories by evaluating each individual pixel within the images. Furthermore, employing a classification approach based on patches enhances the effectiveness of semantic segmentation. The method utilizes a deep convolutional network, the Multiscale U-NET, to categorize multimodal images into three distinct scale segments through detailed analysis at the pixel level. By amalgamating these methodologies, the proposed approach aims to achieve precise and consistent image segmentation, a crucial aspect of effective clinical evaluations in glioma diagnosis.

Published in: 2023 9th International Conference on Smart Structures and Systems (ICSSS)

Date of Conference: 23-24 November 2023

DOI: 10.1109/ICSSS58085.2023.10407395

Date Added to IEEE Xplore: 31 January 2024

Publisher: IEEE

► **ISBN Information:**

Conference Location: CHENNAI, India







 Contents**I. Introduction**

Magnetic Resonance Imaging (MRI) is a frequently employed imaging technique for the evaluation and detection of brain lesions. It delivers superb spatial resolution and provides sharp imaging of soft tissues. While other imaging methods such as CT scans and PET scans are available for brain examination, MRI remains the favored option. Nevertheless, manual segmentation of MRI images is a labor-intensive and intricate process, leading to the development of automated segmentation methods to enhance accuracy, especially in well-trained datasets. With the rising incidence of brain tumor diagnoses, particularly gliomas in adults, there is an increasing demand for efficient and precise methods for classifying and segmenting tumor images. [1].

[Sign in to Continue Reading](#)

Authors



Figures



References



Keywords



Metrics

**More Like This**

Classification of brain tumor types by deep learning with convolutional neural network on magnetic resonance images using a developed web-based interface

2019 3rd International Symposium on Multidisciplinary Studies and Innovative Technologies (ISMSIT)

Published: 2019

A New Convolutional Neural Network Architecture for Automatic Detection of Brain Tumors in Magnetic Resonance Imaging Images

IEEE Access

Published: 2022

[Show More](#)

IEEE Personal Account

CHANGE USERNAME/
PASSWORD

Purchase Details

PAYMENT OPTIONS
VIEW PURCHASED
DOCUMENTS

Profile Information

COMMUNICATIONS
PREFERENCES
PROFESSION AND
EDUCATION
TECHNICAL INTERESTS

Need Help?

US & CANADA: +1 800
678 4333
WORLDWIDE: +1 732
981 0060
CONTACT & SUPPORT

Follow

f @ in v

About IEEE Xplore | Contact Us | Help | Accessibility | Terms of Use | Nondiscrimination Policy | IEEE Ethics Reporting | Sitemap | IEEE Privacy Policy

A not-for-profit organization, IEEE is the world's largest technical professional organization dedicated to advancing technology for the benefit of humanity.

© Copyright 2024 IEEE - All rights reserved.

IEEE Account

- » Change Username/Password
- » Update Address

Purchase Details

- » Payment Options
- » Order History
- » View Purchased Documents

Profile Information



Communications Preferences

» Profession and Education

» Technical Interests

Need Help?

» **US & Canada:** +1 800 678 4333

» **Worldwide:** +1 732 981 0060

» Contact & Support

[About IEEE Xplore](#) | [Contact Us](#) | [Help](#) | [Accessibility](#) | [Terms of Use](#) | [Nondiscrimination Policy](#) | [Sitemap](#) | [Privacy & Opting Out of Cookies](#)

A not-for-profit organization, IEEE is the world's largest technical professional organization dedicated to advancing technology for the benefit of humanity.

© Copyright 2024 IEEE - All rights reserved. Use of this web site signifies your agreement to the terms and conditions.

