

File name: org-061.txt

Result: PLAGIARISM NOT DETECTED

Plagiarism Detected: 4.76%

Text to analyze: Segmentation of tumors in ultrasound (US) images of the breast is a critical issue in medical imaging. Due to the poor quality of US images and the varying specifications of US machines, segmentation and classification of abnormalities present difficulties even for trained radiologists. The paper aims to introduce a novel AI-based hybrid model for US segmentation that offers high accuracy, requires relatively smaller datasets, and is capable of handling previously unseen data. The software can be used for diagnostics and the US-guided biopsies. A unique and robust hybrid approach that combines deep learning (DL) and multi-agent artificial life (AL) has been introduced. The algorithms are verified on three US datasets. The method outperforms 14 selected state-of-the-art algorithms applied to US images characterized by complex geometry and high level of noise. The paper offers an original classification of the images and tests to analyze the limits of the DL. The model has been trained and verified on 1264 ultrasound images. The images are in the JPEG and PNG formats. The age of the patients ranges from 22 to 73 years. The 14 benchmark algorithms include deformable shapes, edge linking, superpixels, machine learning, and DL methods. The tests use eight-region shape- and contour-based evaluation metrics. The proposed method (DL-AL) produces excellent results in terms of the dice coefficient (region) and the relative Hausdorff distance H3 (contour-based) as follows: the easiest image complexity level, $Dice = 0.96$ and $H3 = 0.26$; the medium complexity level, $Dice = 0.91$ and $H3 = 0.82$; and the hardest complexity level, $Dice = 0.90$ and $H3 = 0.84$. All other metrics follow the same pattern. The DL-AL outperforms the second best (Unet-based) method by 10–20%. The method has been also tested by a series of unconventional tests. The model was trained on low complexity images and applied to the entire set of images. These results are summarized below. (1) Only the low complexity images have been used for training (68% unknown images): $Dice = 0.80$ and $H3 = 2.01$. (2) The low and the medium

complexity images have been used for training (51% unknown images): Dice=0.86 and H3=1.32. (3) The low, medium, and hard complexity images have been used for training (35% unknown images): Dice=0.92 and H3=0.76. These tests show a significant advantage of DL-AL over 30%

Sentence: The following sentence: 'Segmentation of tumors in ultrasound (US) images of the breast is a critical issue in medical imaging.' does not present plagiarism

Sentence: The following sentence: 'Due to the poor quality of US images and the varying specifications of US machines, segmentation and classification of abnormalities present difficulties even for trained radiologists.' does not present plagiarism

Sentence: The following sentence: 'The paper aims to introduce a novel AI-based hybrid model for US segmentation that offers high accuracy, requires relatively smaller datasets, and is capable of handling previously unseen data.' does not present plagiarism

Plagiarized Sentence: The following sentence: ' The software can be used for diagnostics and the US-guided biopsies.' presents plagiarism from the 'org-107.txt' file and sentence 'Furthermore, UCINET and NVivo 12 software were used to complete them.'

Sentence: The following sentence: 'A unique and robust hybrid approach that combines deep learning (DL) and multi-agent artificial life (AL) has been introduced.' does not present plagiarism

Sentence: The following sentence: 'The algorithms are verified on three US datasets.' does not present plagiarism

Sentence: The following sentence: 'The method outperforms 14 selected state-of-the-art algorithms

applied to US images characterized by complex geometry and high level of noise.' does not present plagiarism

Sentence: The following sentence: 'The paper offers an original classification of the images and tests to analyze the limits of the DL.' does not present plagiarism

Sentence: The following sentence: 'The model has been trained and verified on 1264 ultrasound images.' does not present plagiarism

Plagiarized Sentence: The following sentence: ' The images are in the JPEG and PNG formats.' presents plagiarism from the 'org-069.txt' file and sentence 'are discussed.'

Sentence: The following sentence: 'The age of the patients ranges from 22 to 73 years.' does not present plagiarism

Sentence: The following sentence: 'The 14 benchmark algorithms include deformable shapes, edge linking, superpixels, machine learning, and DL methods.' does not present plagiarism

Sentence: The following sentence: 'The tests use eight-region shape- and contour-based evaluation metrics.' does not present plagiarism

Sentence: The following sentence: 'The proposed method (DL-AL) produces excellent results in terms of the dice coefficient (region) and the relative Hausdorff distance H3 (contour-based) as follows: the easiest image complexity level, $Dice = 0.96$ and $H3 = 0.26$; the medium complexity level, $Dice = 0.91$ and $H3 = 0.82$; and the hardest complexity level, $Dice = 0.90$ and $H3 = 0.84$.' does not present plagiarism

Sentence: The following sentence: 'All other metrics follow the same pattern.' does not present plagiarism

Sentence: The following sentence: 'The DL-AL outperforms the second best (Unet-based) method by 10â€“20%.' does not present plagiarism

Sentence: The following sentence: 'The method has been also tested by a series of unconventional tests.' does not present plagiarism

Sentence: The following sentence: 'The model was trained on low complexity images and applied to the entire set of images.' does not present plagiarism

Plagiarized Sentence: The following sentence: ' These results are summarized below.' presents plagiarism from the 'org-004.txt' file and sentence 'Result: Artificial intelligence has already entered the education sector.'

Sentence: The following sentence: '(1) Only the low complexity images have been used for training (68% unknown images): Diceâ€‰=â€‰0.80 and H3â€‰=â€‰2.01.' does not present plagiarism

Sentence: The following sentence: '(2) The low and the medium complexity images have been used for training (51% unknown images): Diceâ€‰=â€‰0.86 and H3â€‰=â€‰1.32.' does not present plagiarism

Sentence: The following sentence: '(3) The low, medium, and hard complexity images have been used for training (35% unknown images): Diceâ€‰=â€‰0.92 and H3â€‰=â€‰0.76.' does not present plagiarism

Sentence: The following sentence: 'These tests show a significant advantage of DL-AL over 30%'

does not present plagiarism