

Glioma Segmentation in PET/MRI studies: a preliminary comparative study between Swin Transformer and state-of-the-art CNN models

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Background:

Swin-UNETR and state-of-the-art CNN models comparison on high and low grade glioma sub-compartments segmentation task.

Materials and methods:

Swin-UNTER and CNN were pretrained on the BraTS dataset (n=1251) and Heidelberg University Hospital dataset (n=455), respectively. Dataset includes 105 patients with T1-weighted pre- and post-contrast sequences, FLAIR, and T2-weighted

Results

Swin-UNTER and CNN pretrained on the Brats dataset (n=1251) and Heidelberg University Hospital dataset (n=455), respectively. Dataset includes 105 patients with T1-weighted pre- and post-contrast sequences, FLAIR, and T2-weighted

Conclusion:

Both models exhibited a high DSC and volume ICC for high-grade glioma in segmenting each glioma compartment, while showing an increase in variability in the case of FLAIR hyperintensity for low-grade glioma. The next step will be to extend the workflow including PET images to optimize functional volume quantitation.

