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Overall Survival Prediction in Glioblastoma with Radoimic Features using Machine Learning

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Abstract: *Glioblastoma is a WHO grade IV brain tumor,which leads to poor overall survival (OS) of patients. Forprecise surgical and treatment planning,OS prediction of glioblastoma (GSM) patients is highly desired by clinicans and oncologists. Radiomic research at predicting disease prognosis, thus providing beneficial information for personalized treatment fron a variety of imaging features extracted from multiple MR images. In this study, firstorder, intensity-based volume and shape-based and textual radiomic features are extracted from fluid-attenuated inversion recovery (FLAIR) and T1ce MRI data. The region of intrest is further decomposed with stationary wavelet transform with low-pass and high-pass filtering. Further, radiomic features are extracted on these decomposed images, which helped in acquiring the directional information. The efficiency of the proposed directional algorithm is evaluated on Brain Tumor Segmentation (BraTS) challenge training, validation, and test dataset. The proposed approach secured the third position in BraTS 2018 challenge for the OS prediction task.*

Keywords: Image processing, Machine Learning ,Brain Tumor

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