

Weighted Feature and Focal Neural Search Forward Taylor Network for Brain Tumor Detection

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Abstract

A brain tumor is an irregular growth of cells that develops in the brain and interferes with brain's normal functions. Existing brain tumor detection approaches often face challenges related to accuracy and robustness. Therefore, a novel Deep Learning (DL) system, called Focal Neural Search Forward Taylor Network (FNasFT-Net), to improve reliability of detecting brain tumors. Primarily, input MRI brain image is attained and filtered with the Adaptive Weighted Mean Filter (AWMF) and Multi-input Dilated Convolution U-shape neural network (MD-Unet). Then, several features, like deep features, shape features, frequency-domain features, and texture features are excerpted. Finally, the brain tumor detection is performed with designed FNasFT-Net.

Keywords

Magnetic Resonance Imaging, Brain Tumor, Deep Learning, Focal Neural search Forward Taylor Network.