Advancements in Multiclass Brain Tumor Detection and Classification: A Comprehensive Review

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Abstract: *The detection and classification of brain tumors play a crucial role in medical imaging analysis, facilitating early diagnosis, treatment planning, and patient monitoring. With recent advancements in automated methods, particularly in the multiclass scenario, this comprehensive review aims to provide a detailed analysis of state-of-the-art techniques and methodologies in multiclass brain tumor detection and classification. The review covers various aspects, including dataset characteristics, preprocessing techniques, feature extraction methods, classification algorithms, and evaluation metrics. Additionally, it discusses the challenges associated with this field and proposes future research directions to enhance the advancements in brain tumor analysis further. This review is a valuable resource for researchers and practitioners working towards improving brain tumor detection and classification accuracy and efficacy.*

Keywords: Brain tumor classification, CNN, InceptionV3, Exception, Transfer learning.

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