BRAINIAC - A SYSTEM FOR EARLY BRAIN TUMOR CLASSIFICATION AND DETECTION OF REGIONS OF INTEREST

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Abstract

Cancer is a broad term that refers to a variety of diseases that can manifest itself in any part of the body. According to the Cancer Today Research Agency, cancer is the leading cause of death worldwide, accounting for around 10 million deaths by 2020. Without a question, the brain is the most essential organ in the billions of cells that make up the human body. A brain tumor is a collection of brain cells that have grown abnormally. Despite the availability of established evidence-based treatments, brain tumors remain a leading cause of death in developed countries and are increasing in prevalence in developing countries. This is avoidable with early identification and adequate medical care.

Manually diagnosing a tumor using MRI is a lengthy process., since the number of patients continues to increase as medical personnel become scarcer. Hence, a technologically advanced system is required to conduct tumor classification effectively as a pre-decision-making tool.

Brainiac was established with the objective of closing this diagnostic time gap and developing a robust and efficient mechanism for identifying and categorizing brain tumors using MRI. This application was designed with a simple user interface and was examined by domain specialists and other stakeholders to ascertain the system's viability and reliability.

Keywords:
Brain tumor, classification, region of interest, Convolutional Neural Network