Brain Tumor Detection using Convolutional Neural Network

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Abstract: *Detecting brain tumors in their early stages is crucial. Brain tumors are classified by biopsy, which can only be performed through definitive brain surgery. Computational intelligence-oriented techniques can help physicians identify and classify brain tumors. Herein, we proposed two deep learning methods and several machine learning approaches for diagnosing three types of tumor, i.e., glioma, meningioma, and pituitary gland tumors, as well as healthy brains without tumors, using magnetic resonance brain images to enable physicians to detect with high accuracy tumors in early stages. Brain tumors refer to the abnormal growth of cells in the brain's tissues. Detecting these tumors and accurately determining their size can be challenging when planning treatment. Magnetic resonance imaging (MRI) utilizes strong magnets to produce detailed images of the body's interior, including the brain. Compared to traditional imaging methods, MRI provides clearer visualization of the brain, making it a common approach for identifying brain tumors.*

Keywords: Brain Tumer, MRI, Deep Learning, Artificial Intelligence, CNN.