

## **DIAGNOSIS OF BRAIN TUMOURS USING MACHINE LEARNING ALGORITHM**

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Brain tumors are a profoundly severe and life-threatening affliction that can affect individuals of all ages. With the advancements in medical technology, the early diagnosis of brain tumors has assumed increasing significance in order to ensure the most favorable outcome for patients. With advancements in medical technology, early diagnosis of brain tumors has become increasingly important to ensure the best possible outcome for the patient. Nevertheless, conventional methods employed for diagnosing brain tumors, such as Computerized Tomography (CT) scans and Magnetic Resonance Imaging (MRI) scans, possess inherent limitations, being both costly and time-consuming, and may not consistently yield precise diagnoses. Machine learning algorithms have emerged as powerful instruments for accurately diagnosing brain tumors from medical images. These algorithms possess the potential to enable medical practitioners to make expedited and precise diagnoses, thereby significantly enhancing the prognostic prospects for patients. This study presents the implementation of machine learning algorithms, including Support Vector Machine (SVM), Decision Tree, and Convolution Neural Network (CNN), for the purpose of diagnosing brain tumors. To develop and optimize these algorithms, a dataset comprising brain scans from both healthy individuals and those afflicted by tumors is utilized. This dataset specifically encompasses images obtained from MRI scans. Subsequently, the performance of the algorithms is evaluated by subjecting them to a collection of unseen brain scans. The results of this study demonstrate the capability of machine learning algorithms to diagnose brain tumors with an accuracy surpassing 95%. As such, this study presents a promising avenue for the early detection and diagnosis of brain tumors

**Keywords:** Brain Tumor, Convolution Neural Network, Diagnosis, Decision Tree, Machine Learning Algorithm, Magnetic Resonance Imaging, Support Vector Machine.

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