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## NeuroML - Brain Tumor Classification using Machine Learning and Deep Learning

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Abstract: Brain tumor classification plays a crucial role in the early diagnosis and treatment planning of neurological disorders. This abstract introduces a novel approach for brain tumor classification based on Convolutional Neural Networks (CNN) and deep learning techniques. The proposed system leverages the power of deep learning to accurately categorize brain tumors from medical imaging data, such as magnetic resonance images (MRI). Brain tumors are one of the most common and deadly forms of cancer, affecting millions of people worldwide. Early and accurate diagnosis of brain tumors is crucial for improving the survival rate and quality of life of patients. However, manual diagnosis of brain tumors based on magnetic resonance imaging (MRI) scans is time-consuming, subjective, and prone to errors. Therefore, there is a need for developing automated and reliable methods for brain tumor classification using MRI data. A Convolutional Neural Network architecture is designed and trained on this dataset. The CNN is capable of automatically extracting relevant features from the MRI scans, allowing the model to identify distinct patterns and identifying tumors. The deep learning model is trained on a large and diverse dataset, enabling it to learn and generalize effectively.

**Keywords**: Brain Tumor Classification, CNN, Deep Learning, Medical Imaging, MRI, Convolutional Neural Networks, Diagnosis, Neurological Disorders, Healthcare



