**Using Artificial Intelligence to Diagnose Brain Tumors: A Neural Network Approach**

**By Bimal Itani**

**Abstract:**

This research explores using artificial intelligence to improve the diagnosis of brain tumors through a neural network approach. Specifically, we developed a convolutional neural network (CNN) model based on the VGG-16 architecture to detect and classify brain tumors from MRI scans. By training our model on a large dataset of annotated images and employing data augmentation techniques, we enhanced the model's ability to accurately identify tumors. The model, optimized using the AdamW optimizer, achieved impressive results with a validation accuracy of 90% and a test accuracy of 100%. Our findings indicate that integrating AI tools into medical practices could help radiologists make faster and more accurate diagnoses, ultimately improving patient outcomes. This study, conducted with the support of Claflin University and under the guidance of Dr. Shrikant Pawar, highlights the potential for AI to revolutionize medical diagnostics and pave the way for more personalized and efficient healthcare.