

# From Pixels to Diagnosis: The Role of AI in Brain Tumor Detection

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Link: [https://github.com/juwonpark8/CS3\\_DS4002](https://github.com/juwonpark8/CS3_DS4002)

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Project Title: Predicting Brain Tumors Using Image Analysis

**Imagine a future where early detection of brain tumors becomes not just possible, but accessible, thanks to the power of technology.** As a data scientist, your role is to build a robust image classification model that can analyze brain MRI scans and accurately detect the presence of tumors. Through this mission, you can revolutionize healthcare and save lives.

## Context & Motivation

Brain tumors remain one of the most life-threatening conditions in modern medicine, and early diagnosis is critical to improving patient outcomes. However, manual analysis of MRI scans is time-intensive and prone to human error. This is where technology steps in. By training a classification model using MRI images, you will develop a tool that can support radiologists and clinicians in identifying tumors with precision and speed.

## Your Deliverable

You will leverage deep learning techniques, such as Convolutional Neural Networks (CNNs), to create a model capable of classifying MRI images into tumor or non-tumor categories. Your analysis will include detailed model evaluation, insights on image transformations, and a demonstration of technology that can integrate into real-world solutions.

## Why This Matters

This project is more than just an exercise in machine learning; it's an opportunity to contribute to a technology that can save lives. By building a model for brain tumor detection, you are addressing a real-world medical challenge and showcasing how data science can enhance diagnostic accuracy, improve healthcare outcomes, and ultimately make a difference. Let's put AI to work for a healthier future—one scan at a time.