



PRESTIGE INSTITUTE OF ENGINEERING MANAGEMENT AND RESEARCH

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BRAIN TUMOUR DETECTION AND CLASSIFICATION USING DEEP LEARNING

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ABSTRACT

Researchers have explored algorithms for accurate and efficient brain tumor detection and classification. Deep learning, specifically Convolutional Neural Networks (CNN) and YOLO (You Only Look Once) object detection, has played a pivotal role in enhancing diagnostic precision. Leveraging MRI scans, these methods offer a robust approach, detecting abnormal tissue growth. This study emphasizes the significance of deep learning in advancing brain tumor diagnostic capabilities, contributing to the development of more effective medical imaging systems. These strategies, employed in conjunction with Magnetic Resonance Imaging (MRI), offer a comprehensive solution for precise identification and classification of abnormal tissue growth in the brain.

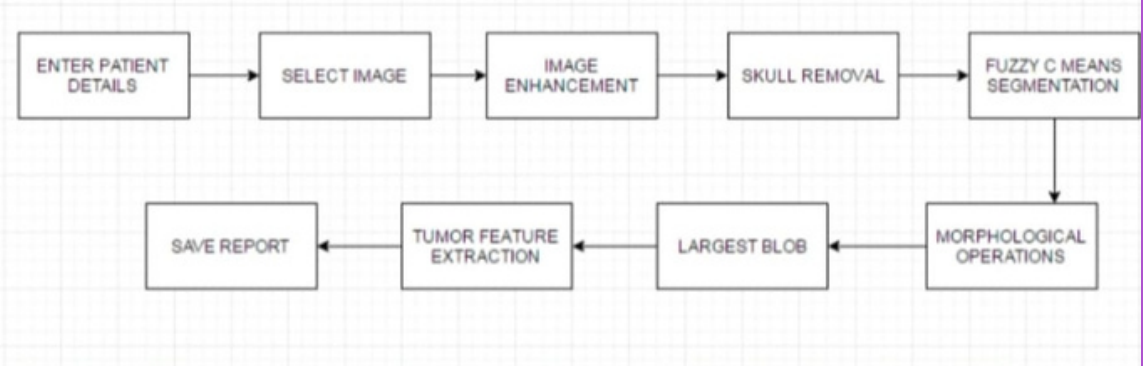
KEYWORDS

- Algorithms
- Deep Learning
- MRI Scans
- AbnormalTissue Growth
- YOLO (You Only Look Once)
- Medical Imaging Systems

INTRODUCTION

Our project focuses on revolutionizing brain tumor detection and classification using state-of-the-art deep learning techniques. Leveraging the power of Convolutional Neural Networks (CNNs) and sophisticated models, we aim to enhance the accuracy and efficiency of identifying various brain tumor types, including meningioma, glioma, and pituitary tumors. The significance of our work lies in its potential to transform medical imaging systems, providing a more effective and precise diagnostic approach. By delving into the advancements in deep learning, our project emphasizes the integration of these intelligent techniques with Magnetic Resonance Imaging (MRI) scans. This synergy aims to offer a comprehensive solution for the identification and classification of abnormal tissue growth in the brain. Our research aligns with the growing need for cutting-edge technologies in healthcare, promising improved diagnostic capabilities and ultimately contributing to enhanced patient outcomes.

MODEL AND APPROACH



TECHNOLOGY



APPLICATIONS

- 1. Brain Tumor Detection:**
 - Deep learning models are employed to detect and classify brain tumors in MRI images, aiding in early diagnosis and treatment planning.
- 2. Medical Image Classification:**
 - Deep learning is utilized for the classification of various medical images, such as X-rays, CT scans, and mammograms, assisting in the identification of abnormalities and diseases.
- 3. Segmentation and Localization:**
 - Deep learning algorithms excel in segmenting and localizing specific structures or anomalies within medical images, facilitating precise analysis and intervention planning.
- 4. Disease Diagnosis and Prediction:**
 - Deep learning models contribute to diagnosing diseases by analyzing medical images, and they can also predict the likelihood of disease progression based on image features.
- 5. Image Registration:**
 - Deep learning aids in aligning and registering medical images from different modalities, enhancing the integration of information for comprehensive analysis.