



NARASARAOPETA ENGINEERING COLLEGE (AUTONOMOUS)
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

2024-2025

Batch Number	AG3
Team Members	D.Abhigna (21471A0519) SK.Sameera (21471A0555) Ch. Harini (21471A0516)
Guide	DR.Sireesha Moturi M.Tech,Ph.D
Title	Enhanced Classification and Detection of Brain Tumor using Hybrid Deep Learning and Machine Learning Models
Domain/Technology	DEEP LEARNING AND MACHINE LEARNING
Base Paper Link	https://www.sciencedirect.com/science/article/pii/S2665917424000023
Dataset Link	https://www.kaggle.com/datasets/vivekp7039/figshare-brain-tumor-dataset-converted-to-png
Software Requirements	Browser: Any latest browser like Chrome Operating System: Windows 7 Server or later Python (COLAB)
Hardware Requirements	SystemType: Intel Core i5 or above RAM: 8 GB Number of cores:5 Number of Threads: 4
Abstract	<p>This study introduces a method for brain tumor detection in MRI scans using a hybrid model combining convolutional neural networks (CNNs) and support vector machines (SVMs).First, preprocessing techniques like adaptive gamma correction, adaptive contrast enhancement, and median filtering are applied to enhance image quality and reduce noise. Fuzzy c-means clustering is used to extract important texture features such as energy, mean values, and entropy from gray-level co-occurrence matrices (GLCMs).</p> <p>CNNs effectively extract deep features from segmented images, which are then fed into SVM classifiers for precise</p>

	<p>categorization of normal and abnormal brain tissue. The hybrid CNN-SVM model achieves 97.94% accuracy, 95% sensitivity, and 98.1% specificity.</p> <p>This combination of preprocessing, feature extraction, and classification techniques provides a highly effective and automated approach for early brain tumor detection.</p>
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Signature of the student(s)

Signature of the Guide

Signature of the project coordinator