

# Literature Survey

No.	Journal / Year	Title	Authors	Methodology	Dataset	Performance	Limitations	Objectives	Advantages
1	IJARSCT, 2024	Brain Tumor Detection and Classification using YOLOv10 and AI Chatbot Using LLMs	Sanket Satpute1 ,Jagruiti Khairnar ,Kunal Shinde,Rohini Sangle, Prof. Jyoti Thakur	YOLOv10-based object detection integrated with LLM chatbot	MRI Brain Tumor Dataset	High accuracy, real-time detection	Needs large annotated datasets	Early and accurate tumor diagnosis	Fast detection with interactive medical assistance
2	Journal, 2023	Optimizing Brain Tumor Classification through Feature Selection and Hyperparameter Tuning in ML Models	Mst Sazia Tahosin ,Md Alif Sheakh ,Taminul Islam ,Rishalatum Jannat Lima,Mahbuba Begum	Feature extraction, feature selection, and hyperparameter tuning using ML classifiers	Brain MRI Dataset	98.0% accuracy	High computational cost	Improve classification accuracy	Robust feature selection and optimized models
3	Journal, 2025	A Multi-centre Performance Evaluation of a Commercially Developed Liquid Biopsy for Earlier Detection of Brain Tumours	P. M. Brennan,J. M. Camero	Liquid biopsy using blood serum analysis and diagnostic comparison	EMBRACE multi-centre clinical dataset	86% sensitivity, 99% NPV	Lower sensitivity for benign tumors	Early cancer detection and triage	Non-invasive, rapid, primary-care friendly
4	Journal, 2024	Advanced AI Framework for Accurate Detection and Classification of Brain Tumours from MRI Images	Tahasin Ahmed Fahim ,Fatema Binte Alam ,Md Azad Hossain	CNN-based deep learning for detection, segmentation, and classification	MRI datasets including glioma, meningioma, pituitary tumors, and healthy controls	High classification accuracy and reliable diagnosis	Model complexity and high computational requirements	Improve accuracy, interpretability, and clinical decision support	Enhanced diagnostic reliability, explainable AI, supports early treatment decisions
5	Journal, 2024	Brain tumor detection, classification and segmentation by deep learning models from MRI images	Yucheng Guan ,Ahmad Alshamari ,Yu Wang ,Jahan Zeb Gul ,Azhar Imran	Review of deep learning and hybrid models for detection, classification, and segmentation	Public MRI datasets, preprocessing methods	Comprehensive overview of recent models and their performance	Challenges include heterogeneity, complexity, and clinical applicability	Improve accuracy, robustness, and clinical trustworthiness	Guides researchers and healthcare professionals, highlights emerging trends and future directions
6	Journal, 2024	ResSGA-Net: A deep learning approach for enhanced brain tumor detection and classification	Kartik Deogire ,Dhanashree Patil ,Sahil Dhake ,Shreevalabh Chidrawar ,Omkar Jagtap	Hybrid deep learning framework combining ResNet50, dual attention, and Swin Transformer for multi-class classification	Public MRI datasets for three-class and four-class tumor classification	State-of-the-art accuracy (98%), robust generalization, and reliable decision confidence	High model complexity and computational requirements	Improve accuracy, feature representation, and clinical integration	Accurate, stable, and clinically meaningful automated brain tumor classification
7	Journal, 2025	Smart Neuro-Oncology Assistant: A Chatbot for Brain Tumour Detection and Primary Cancer Prediction	Kartik Deogire ,Dhanashree Patil ,Sahil Dhake ,Shreevalabh Chidrawar ,Omkar Jagtap	Deep learning-based tumor detection with Xception CNN and AI-powered chatbot for primary cancer prediction	MRI datasets for Glioma, Meningioma, Pituitary, and No Tumor	High accuracy (96%) with class-specific F1-scores 0.93-0.98, supports interactive patient guidance	System complexity and dependency on AI generative model	Improve diagnostic assistance, patient engagement, and clinical decision support	High accuracy, robust tumor classification, and interactive patient guidance
8	Journal, 2024	Advanced brain tumor detection using YOLO-11 in MRI images	Nuthi Raju ,Kankanala Srinivas a ,Chilukamari Rajesh b ,Balaram Murthy Chintakindi b	YOLOv11-based deep learning with TwinFormer and SCFStage for enhanced tumor localization	BR35H and Real Brain Tumor MRI datasets	High precision (0.936), recall (0.927), mAP@50 of 0.950, robust real-time detection	Challenges with small tumor size, low contrast, and complex morphology	Improve detection accuracy, multi-scale feature representation, and training stability	Enhanced real-time tumor detection with high precision and robust multi-scale localization
9	Journal, 2024	A Deep learning framework for brain tumor detection using CNNs and transfer learning on MRI scans	Kandagatla Srikar Prabbhas ,Ali Basem ,L. Lakshmi ,Abdul Talha ,Sarhang Hayyas Mohammed ,M. Ijaz Khan ,Nidhal Ben Khedher	Ensemble CNN and transfer learning using MobileNetV2, VGG16, and Vision Transformer (ViT) for tumor classification	MRI datasets with Pituitary, Meningioma, Glioma, and No Tumor	High accuracy (up to 98.78%), balanced F1-score, precision, and recall, robust model consistency	High computational requirements and model complexity	Improve accuracy, efficiency, and generalization for clinical applicability	High accuracy, robust performance, and clinically applicable tumor classification
10	Journal, 2025	Prospective comparison of brain tumor detection using post-contrast Dixon uT1RESS and MPRAGE at 3 Tesla	Adrienn Toth, ,Robert R. Edelman ,Muhammad Taha Hagar ,Dmitrij Kravchenko	Comparison of Dixon uT1RESS and MPRAGE MRI sequences for tumor detection and characterization	MRI scans of 20 patients with primary tumors and metastases	Dixon uT1RESS improved lesion conspicuity, faster acquisition, better tumor-to-brain contrast, and detected additional lesions	Limited patient sample, requires complementary sequences for full characterization	Improve detection accuracy and reduce scanning time	Dixon uT1RESS enhances tumor visibility, detects small lesions, and offers faster, more effective clinical imaging
11	Journal, 2025	Early Life Style Disease Prediction, Brain Tumor Detection with Chatbot and Doctor Appointment Booking	Kadaganchi Sudhakar,Pasula Manish	Web-based platform using ML algorithms (Gradient Boosting, Random Forest) for disease prediction and brain tumor detection	Patient symptom data and brain MRI images	Accurate early disease detection and tumor identification, personalized medical advice	Depends on user-provided data and imaging quality, limited clinical validation	Enhance early diagnosis, medical support, and healthcare access	Integrated platform providing early disease prediction, brain tumor detection, and personalized healthcare guidance