**Literature Review Table**

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| **SN** | **Title** | **Year** | **Dataset** | **Methodology** | **Performance Metrics** | **Limitations** |
| 1 | MRI-based Brain Tumor Detection Using Convolutional Deep Learning Methods and Chosen Machine Learning Techniques | 2023 | 3,264 T1-weighted contrast-enhanced MRI images | 2D CNN, convolutional autoencoder, ML classifiers | CNN: 96.47%; Autoencoder: 95.63%; ML: 28–86% | High computational complexity; longer training times |
| 2 | Brain Tumor Detection and Classification Using Fine-Tuned CNN | 2023 | Public MRI dataset (details not reported) | Fine-tuned ResNet50, U-Net | Accuracy: 97.5%; Precision: 96.8%; Recall: 97.2% | Requires large labeled datasets; overfitting risk |
| 3 | Accurate Brain Tumor Detection Using Deep CNNs | 2022 | MRI (meningioma, glioma, pituitary) | Custom CNN (binary + multiclass) | Binary: 98.7%; Multiclass: 97.3% | Limited to 3 tumor types |
| 4 | Brain Tumor Segmentation and Detection in MRI Using CNN | 2025 | Public MRI datasets | CNN-based segmentation + detection | Dice: 0.89; Sensitivity: 0.91; Specificity: 0.88 | Dependent on preprocessing; image quality sensitive |
| 5 | Brain Tumor Detection Analysis Using CNN: A Review | 2021 | Multiple MRI datasets | Review of CNN architectures | Reported accuracies: 90–98% | Highlights challenges like data scarcity, interpretability |
| 6 | Detection of Tumors on Brain MRI Using Hybrid CNN | 2020 | MRI datasets (multi-source) | Hybrid CNN (multi-conv layers) | Accuracy: 96.5%; Sensitivity: 95.8%; Specificity: 96.2% | Computationally intensive; needs deployment optimization |
| 7 | Brain Tumor Detection Empowered with Ensemble DL | 2025 | MRI (pituitary, meningioma, glioma, normal) | Ensemble DL models | Accuracy: 99.1%; Precision: 98.9%; Recall: 99.0% | Ensemble adds computational overhead |
| 8 | Novel DNN Approach for Brain Tumor Detection & Classification | 2025 | Dataset not reported | Deep Neural Network + component analysis | Accuracy: 99%; Sensitivity: 97.3% | Model complexity hinders real-time use |
| 9 | Customized CNN for Brain Tumor Prediction with Explainable AI | 2024 | Dataset not reported | Custom CNN + XAI methods | Accuracy: 95.6%; Precision: 94.8%; Recall: 95.2% | Dataset details missing; generalization unclear |
| 10 | Novel CNN with Modified Activation Functions | 2024 | Dataset not reported | CNN with 9 activation functions | Accuracy: 97.6%; Glioma: 93.7%; Meningioma: 97.4%; Pituitary: 100% | Limited to 4 tumor types |
| 11 | Deep Learning-Integrated MRI Brain Tumor Analysis | 2024 | Dataset not reported | CNN-based classification + segmentation | High accuracy, specificity, recall (values not disclosed) | Exact dataset and metrics not reported |
| 12 | Explainable Deep Learning Models for MRI Tumor Detection | 2024 | Dataset not reported | XAI integrated DL models | High accuracy & interpretability (exact values missing) | Requires large annotated datasets |
| 13 | Comparison of CNN and Transfer Learning Models for Brain Tumor Detection | 2024 | Dataset not reported | CNN, InceptionV3, EfficientNetB4, VGG19 | Evaluated on F-score, recall, accuracy (not detailed) | Dataset details + metrics not specified |
| 14 | Explainable CNN for Brain Tumor Detection | 2025 | Dataset not reported | Dense CNN + explainable AI | Reported high accuracy in multi-class detection | Dataset details missing; generalizability unverified |
| 15 | Black Widow-Optimized Dense CNN for Tumor Segmentation | 2024 | Dataset not reported | Optimized Dense CNN | Reported improvements (exact values missing) | Dataset and metrics not disclosed |
| 16 | CNN-TumorNet: Explainability with LIME | 2025 | Kaggle MRI dataset | CNN-TumorNet + LIME | Reported high accuracy (exact value missing) | Explainability adds computational cost |
| 17 | Fibonacci-Net: Lightweight CNN for Tumor Classification | 2025 | Three MRI datasets | Lightweight CNN (Fibonacci filter series) | Accuracy: 96.2%; Precision: 97.17%; Recall: 95.9%; F1: 96.5%; Specificity: 99.9% | Clinical generalization not evaluated |
| 18 | ResViT: Hybrid CNN-Transformer for Tumor Classification | 2024 | BraTS 2023, Figshare, Kaggle | Residual Vision Transformer (ResViT) | BraTS: 90.56%; Figshare: 98.53%; Kaggle: 98.47% | Training cost is high; transformer complexity |
| 19 | Improved YOLOv8 for Real-Time Tumor Identification | 2025 | Public MRI dataset | YOLOv8 + RTD Transformer + Ghost conv | mAP@0.5: 0.91 | Hardware limits real-time deployment |
| 20 | Cost-Sensitive DL Models for Tumor Detection | 2023 | Dataset not reported | CNN, ResNet50, InceptionV3, EfficientNetB0, NASNetMobile | InceptionV3: 99.33%; Cost-sensitive: 92.31%; Recall: 1.00 | Imbalance addressed, but generalization untested |