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## REVIEWER'S REPORT

**Manuscript No.: JNCS-001**

**Title: Brain Tumor Detection Using Machine Learning and Deep Learning**

**Recommendation:**

Accept as it is .....

Accept after minor revision.....

Accept after major revision .....

Do not accept (*Reasons below*) .....

| Rating | Excel. | Good | Fair | Poor |
|---|---|---|---|---|
| Originality | | ✓ | | |
| Techn. Quality | | | ✓ | |
| Clarity | | ✓ | | |
| Significance | | ✓ | | |

## *Reviewer's Comment for Publication*

The manuscript presents a comprehensive overview of brain tumor detection using Machine Learning (ML) and Deep Learning (DL) techniques applied to MRI data. The topic is highly relevant and significant in the field of medical image analysis, particularly considering the increasing adoption of AI-based diagnostic tools in clinical practice.

### Strengths of the Manuscript:

1. The paper provides a well-structured explanation of ML and DL techniques, including CNN architecture, U-Net segmentation, loss functions, and evaluation metrics.
2. Mathematical formulations for preprocessing and model training steps are clearly presented.
3. The manuscript discusses both classification and segmentation tasks, offering a broader perspective.
4. Practical deployment considerations such as interpretability, edge computing, and telemedicine integration are acknowledged.
5. Use of publicly available datasets such as BraTS strengthens reproducibility.

### Major Observations:

1. Lack of Experimental Results:

   The manuscript does not provide detailed quantitative results (e.g., accuracy percentages, Dice scores, comparison tables). There is no clear experimental results

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section with numerical findings, statistical analysis, or comparative benchmarking against existing methods.

2. Absence of Dataset Details:
   Specific dataset information (number of samples, train-test split ratio, validation strategy) is missing.
3. No Implementation Details:
   Important technical details such as learning rate, optimizer configuration, number of epochs, hardware specifications, and hyperparameter tuning strategy are not clearly reported.
4. Literature Citations Incomplete:
   Several references are marked as "[?]" and not properly cited. This significantly affects academic quality and credibility.
5. Redundancy in Content:
   Some sections, particularly the "Training Deep Learning Models" portion, are repeated with minor variation.
6. Language and Formatting Issues:
   There are grammatical inconsistencies and formatting irregularities (line breaks, spacing, repetition of headings). Professional proofreading is recommended.

**Minor Suggestions:**

- Include a comparative performance table summarizing ML vs DL models.
- Add graphical performance curves (ROC, loss curves).
- Provide ablation study or justification of chosen architecture.
- Clarify whether the study proposes a novel model or is a comparative survey.
- Improve conclusion with precise numerical outcomes and future research direction.

## *Final Recommendation*

The manuscript addresses an important and timely research problem and demonstrates good conceptual understanding of ML and DL approaches for brain tumor detection. However, due to the absence of concrete experimental results, incomplete citations, and structural redundancies, the paper requires minor revision before it can be considered for publication.