

BRAIN TUMOR CLASSIFICATION USING 3 DIFFERENT DEEP LEARNING MODELS

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Abstract: Just a Summary of our 3 models Including metric like accuracy the model that we build and how we came up with the Model.

1) INTRODUCTION:

A Brief Introduction about what is Brain Tumor what are its types what types we have included in our model for Classification how brain tumor occurs and some numerical statistics about how many people get infected and emphasis how important it is for predicting brain tumor at early stages.

2) RELATED WORK:

Here we discuss about other Research Papers and Models that have been build and what were their accuracy to get the idea. And uptill now which is the best model that I found out for brain tumor Classification.

3) MATERIALS AND METHODS:

3.1) Experimental Setup:

What are the Hardware Materials that we used for ex:

Google Colab: We used T4 GPU and its own CPU

Server GPU: we later moved on to SERVER GPU we need to add all these important information

3.2) Dataset:

We took the dataset from Kaggle which contain about 7000 MRI Brain tumor images which included both Training and Testing.

Link : <https://www.kaggle.com/datasets/masoudnickparvar/brain-tumor-mri-dataset>

And create a table for How many images are present in each category of our Brain tumor

Pituitary	Meningioma	Also add sample images from dataset for each category
Glioma	No Tumor	

3.3) Proposed Methodology:

Methodology 1: (EfficientNetB4 Model)

Attach a EfficientNetB4 Architecture Diagram for clear understanding of how it works

What are its strengths and weakness of the model

Methodology 2: (EfficientNetB4 + ViT Transformer Model)

Same thing applied here too

Methodology 3: (2D Custom CNN)

Same thing applied here too

3.4) Confusion metrics:

General Discussion of Confusion metrics along with the diagram

3.5) Calculation metrics:

How we calculated our metrics for that we include formulas here :

Accuracy

Precision

AUC

F1Score

Recall

We need to add Sensitivity and Specificity

4) RESULTS AND DISCUSSION:

(We will keep this part as last as we need to work together for this alone)

Model 1:

What did we do how we came up with this model and include all other metrics and a graph for validation accuracy and loss for this model

Model 2:

Similarly the Same for model 2 also

Model 3:
Same Procedure

Then we will have a table comparing all three models and a graph for the same
Comparing all metric like accuracy Precision recall validation loss and so on.

5) CONCLUSION AND FUTURE WORK:

The Conclusion of the models that we built that challenges that we faced and also provide insights of how we can still build better models than this for others viewing this research papers.

REFERENCES