ENGINNERING FACULTY - COMPUTER ENGINEERING DEPARTMENT

BIOMEDICAL IMAGE PROCESSING AND MACHINE LEARNING
2022-2023 SPRING
FINAL PROJECT REPORT

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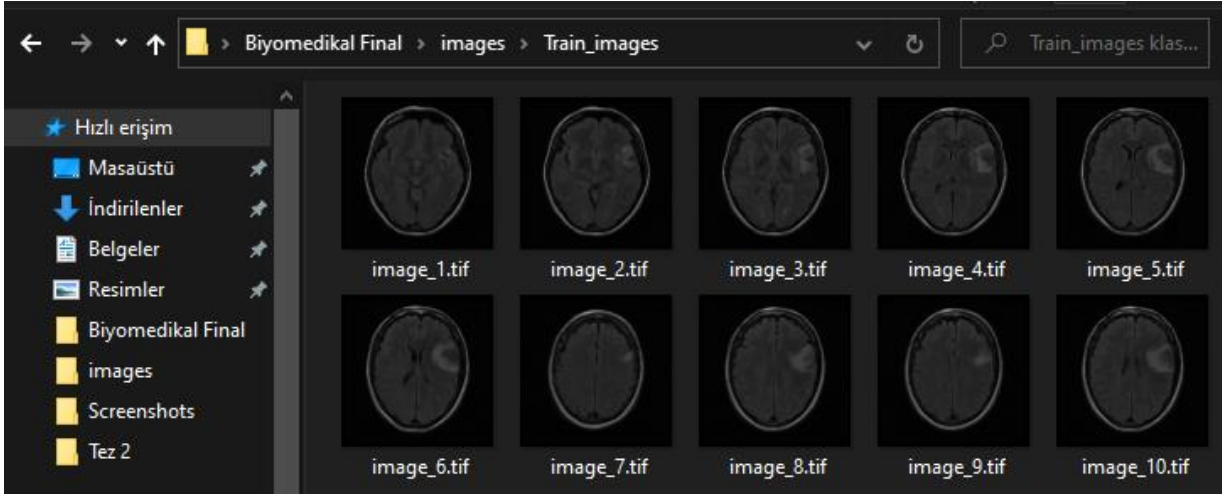**TABLE OF CONTENTS**

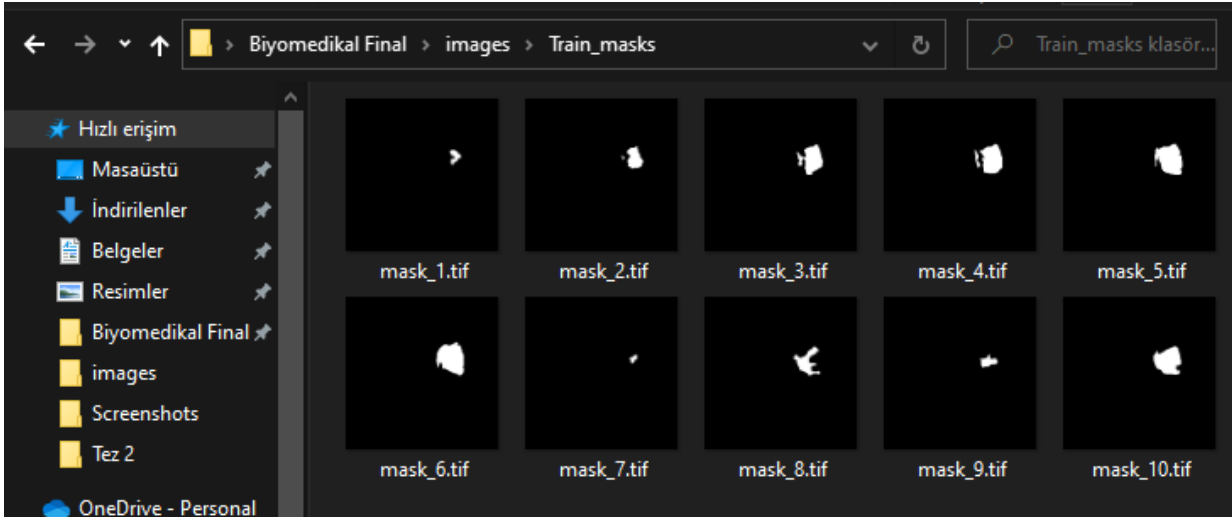# 1   EXPLAIN PROPERTIES OF THE SEGMENTATION DATASET

 Our dataset includes brain MR images along with manual FLAIR abnormality segmentation masks. We selected 10 images from the dataset. We used 9 images for train and 1 image for testing.

First 9 images for train, last image for testing.
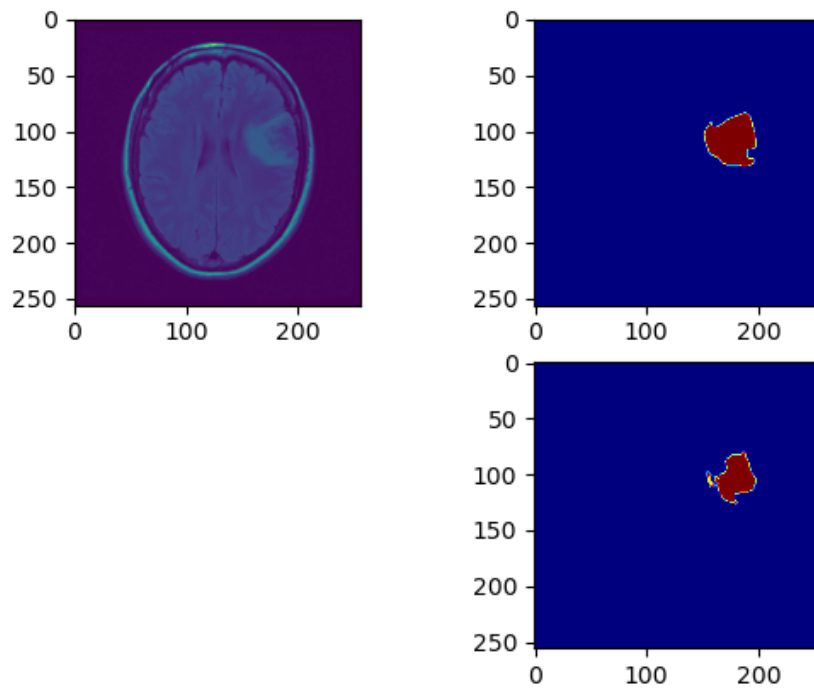
Train Images:

Train Masks :

2   MACHINE LEARNING METHOD AND RESULTS

We first trained our dataset with the Random Forest model. We saved the model and the prediction image made with the test data.

As a result, the score values and image outputs we get are as follows:

```
In [32]: print("Accuracy:", accuracy)
    ...: print("IoU Score:", iou_score)
    ...: print("Training Time:", training_time)
Accuracy: 0.9748992919921875
IoU Score: 0.6024316109422493
Training Time: 401.6167850494385
```

3   DEEP LEARNING METHOD AND RESULTS

 In this part, we trained our dataset with UNet, a deep learning model used in biomedical image processing and image segmentation. Then we saved the model and the prediction image made with the test data.

As a result, the score values and image outputs we get are as follows: