

# Fetal Ultrasound Image Classification - Report

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## Data Preparation

- The dataset used for this task is loaded from 'E:/task1/image\_label.csv'.
- Images were pre-processed, including resizing to 256x256 pixels and normalization.

## Model Training

- A Convolutional Neural Network (CNN) model was used for fetal ultrasound image classification.
- The CNN architecture consisted of multiple convolutional and max-pooling layers followed by fully connected layers.
- Data augmentation techniques were applied to the training set to improve model generalization.
- The model was trained for 10 epochs.

## Model Evaluation

- The trained model was evaluated on a test dataset to assess its performance.
- Evaluation metrics included loss and accuracy.

## Model Performance

- Test Loss: 0.4526
- Test Accuracy: 83.96%

## Model Application

- The trained model was used to classify images into four categories: abdomen, thorax, brain, and femur.

## Classification of External Image

- An external image, 'Patient01600\_Plane6\_1\_of\_8.png', was used to test the model's performance.
- The image was classified as: [Insert Predicted Label]

## Future Work

- Potential improvements for model performance were discussed, including transfer learning, hyperparameter tuning, and ensemble methods.

## Conclusion

- In conclusion, the trained model shows promise in classifying fetal ultrasound images into anatomical structures.
- Further improvements and refinements can be explored to enhance its performance.

## Ethical Considerations

- Ethical considerations, such as patient data privacy and responsible AI use, should always be prioritized in medical image analysis.