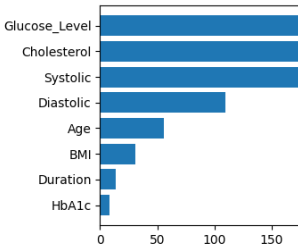


SHAP (Feature Importance)



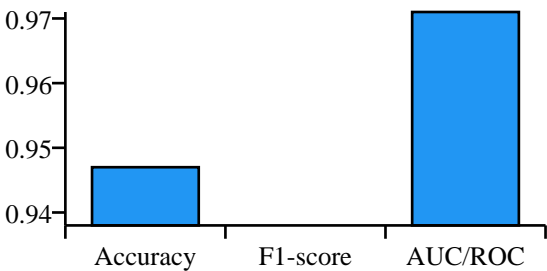
Lesion Quantification

Lesion Quantification:

| Feature | Percentage |
|-------------------|------------|
| Exudates | 19.10% |
| Hemorrhages | 0.33% |
| Cotton_wool | 0.00% |
| Lesion_percentage | 19.43% |

Model Performance Summary

Accuracy: 0.947
F1-score: 0.938
AUC/ROC: 0.971



Algorithmic Architecture

Fusion-based ensemble combining EfficientNet-B0, ResNet50, and Vision Transformer backbones, trained using focal loss on retinal image datasets and fused with patient metadata via a RandomForest–XGBoost hybrid classifier for final stage prediction.