

# Research Report

Generated: 2026-01-11 17:49:00

## Stage: PDR

### Metadata Snapshot

Name: sebastain

Age: 89

Gender: Male

Systolic (mmHg): 180

Diastolic (mmHg): 110

BMI: 30

Glucose: 432

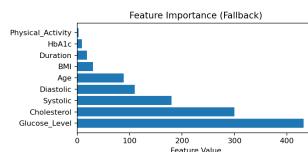
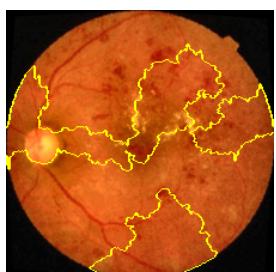
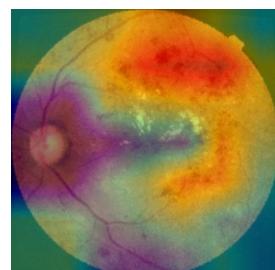
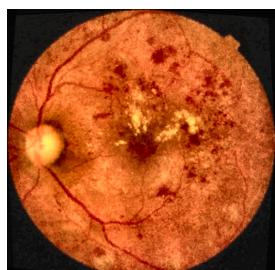
HbA1c: 8.9

Cholesterol: 300

Smoking: Yes

Hypertension: Yes

Diabetes Duration: 19



### Summary

- Research Notes
- UID: 8c673d90
- Predicted Stage: Pdr

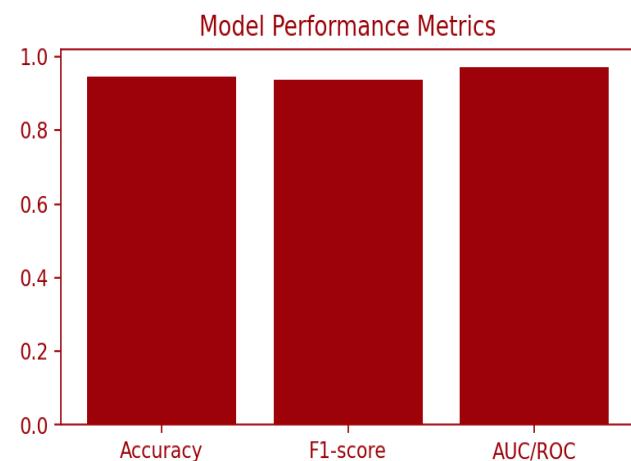
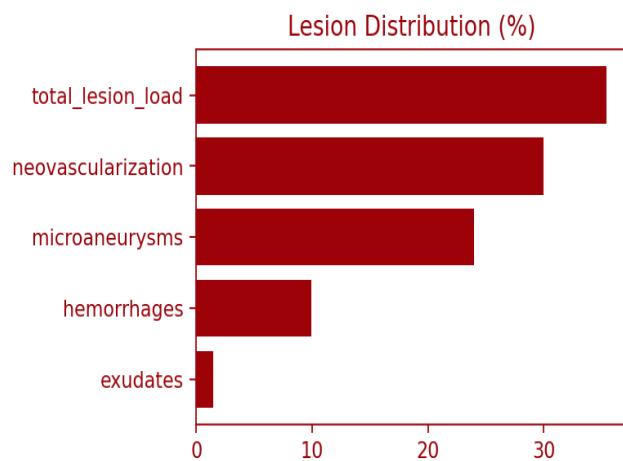
# Summary

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- Model Architecture:
- CNN ensemble (EfficientNet, ResNet50, ViT) combined with metadata models (Random Forest, XGBoost) via calibrated fusion.
- Explainability:
- Grad-CAM highlights spatial retinal features, LIME validates local pixel importance, and SHAP explains systemic risk contribution.
- Probability Vectors:
- CNN: [0.010821065865457058, 0.012188243679702282, 0.017901958897709846, 0.037009499967098236, 0.9220792651176453]
- ML: [0.21136369507961952, 0.20268235745827803, 0.19376393050773666, 0.19047474400645248, 0.20171527294791336]
- Fused: [0.0409024590819239, 0.040762359584823736, 0.044281253377265864, 0.06002928486225855, 0.8140246430937279]
- Inference Device: CPU

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