

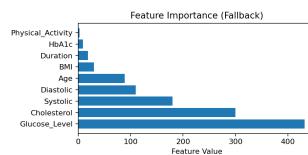
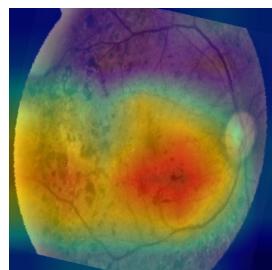
# Research Report

Generated: 2026-01-11 16:47:53

**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: 893a90dd
- 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: [0.007390813436359167, 0.007619400043040514, 0.008325896225869656, 0.007223432417958975, 0.9694404602050781]
- ML: [0.21136369507961952, 0.20268235745827803, 0.19376393050773666, 0.19047474400645248, 0.20171527294791336]
- Fused: [0.03798674560767015, 0.03687884358234068, 0.036141601296623284, 0.034711129087537575, 0.8542816804258282]
- Inference Device: CPU

