

**Stage: SEVERE****Metadata Snapshot**

Full Name: solomon

Age: 78

Gender: Male

Systolic Blood Pressure (mmHg): 180

Diastolic Blood Pressure (mmHg): 110

BMI: 30.8

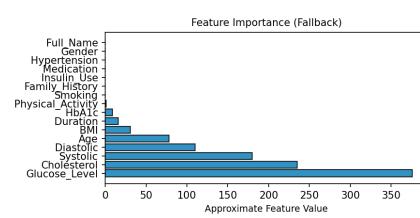
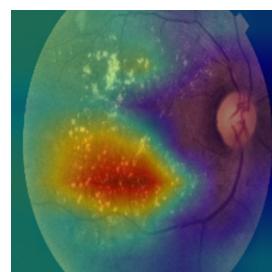
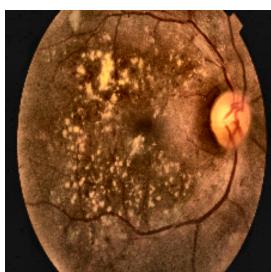
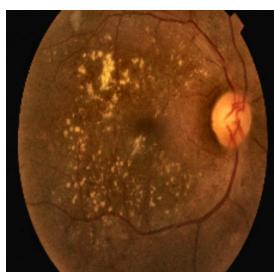
HbA1c: 8.6

Cholesterol: 235

Smoking: Yes

Drinking: Yes

Model Confidence: 16



- Clinical Report — Ophthalmologist
- Patient: Name: solomon, Age: 78, BMI: 30.8
- Predicted stage: SEVERE
- Model confidence: 83.6%



- Risk score: 95.42%
- Findings (automated lesion quantification):
 - Microaneurysms: 17.09%
 - Exudates: 4.29%
 - Hemorrhages: 2.50%
 - Cotton Wool: 0.00%
 - Neovascularization: 25.00%
 - Total Lesion Load: 23.89%
- Clinical interpretation:
 - Extensive hemorrhages, venous beading and/or cotton-wool spots consistent with severe NPDR. Urgent referral advised.
- Model & Explainability:
 - Multi-model fusion: CNN ensemble (EfficientNet, ResNet50, ViT) + metadata models (RF, XGBoost, stacked ensemble).
 - Explainability outputs available: GradCAM++, LIME, SHAP — review heatmaps and overlay masks.
- Performance metrics:
 - Accuracy: 0.947
 - F1-score: 0.938
 - AUC/ROC: 0.971
- Suggested clinical action items:
 1. Correlate with slit-lamp exam and fundus exam.
 2. If macular edema suspected, obtain OCT imaging.
 3. For suspected PDR, arrange urgent retina referral for potential PRP/anti-VEGF.
 4. Document lesion masks if available for audit.

