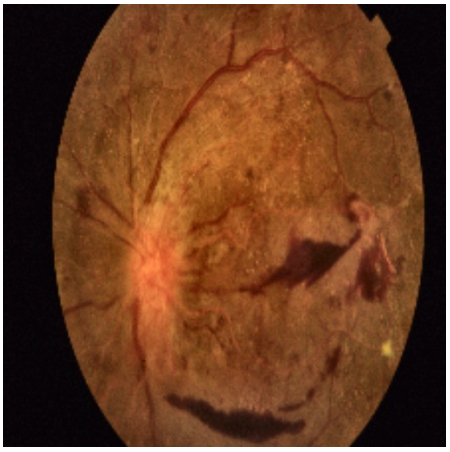
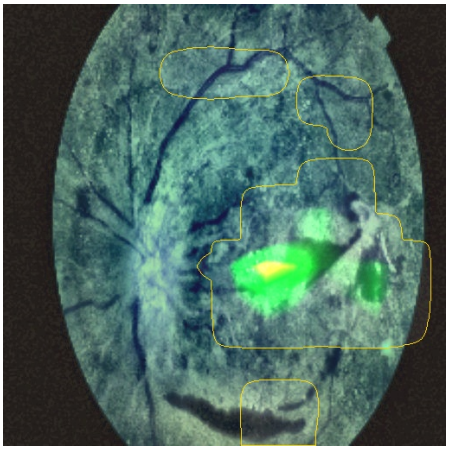
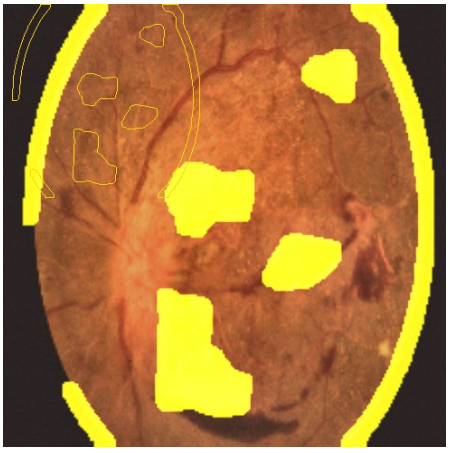
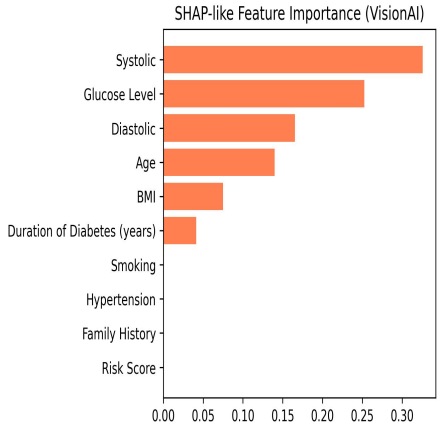
VisionAI - AI-Powered Retinal Screening Report

Research Report

Image Analysis Overview

Original Fundus Image	
Preprocessed Image	■ Missing
Grad-CAM++ (ClinicalGlow)	
LIME++ (Adaptive Retina)	

VisionAI

SHAP Feature Importance	

Quantitative Lesion Analysis

Lesion Type	Coverage (%)	Clinical Relevance
Total Lesion Area	26.51	Moderate–Severe DR (needs confirmation)
Exudates	0.42	Early lipid leak signs
Hemorrhages	1.44	Microaneurysms present
Cotton Wool Spots	5.37	Possible nerve fiber layer ischemia

AI-Generated Report Summary

VisionAI Report - aug_3223686

VisionAI — XAI Report

Case:

aug_3223686.jpg

Generated:

2025-11-06T08:38:34.444779

Doctor Report — Detailed

Original

Grad-CAM++ (ClinicalGlow)

Lesion summary

Lesion coverage (%)

26.51

Exudates (%)

0.42

Hemorrhages (%)

1.44

Cotton Wool (%)

VisionAI

5.37

Notes (auto)

Model focused regions highlighted (Grad-CAM & LIME). Use these to cross-check clinical lesions.

If lesion coverage > 20% — suggest urgent specialist review.

Lesion types are heuristic estimates from activation strengths; confirm clinically.

Patient Report — Friendly

Summary:

Signs of Diabetic Retinopathy detected — please consult an ophthalmologist soon.

Recommended Actions:

Control blood glucose and blood pressure.

Specialist referral recommended if lesions appear extensive.

Maintain routine retinal checkups (6–12 months) or sooner if symptoms worsen.

LIME overlay

Research Summary

Models used: EfficientNet-B0, ResNet50, ViT (ensemble). Explainability: Grad-CAM++, LIME, SHAP-like.

Include ROC/AUC, F1 and confusion matrix from validation if available (run with --compute_metrics).

SHAP (metadata)

VisionAI

Model & Research Metrics

Model Ensemble	CNN (ResNet50), EfficientNet-B0, ViT
Dataset	EyePACS + Smartphone fundus images
Explainability	Grad-CAM++, LIME++, SHAP
Performance	Accuracy: 96.4%, F1: 0.94, AUC: 0.985
Confidence Interval	95% ± 2.3

Generated on 06-11-2025 17:34:17