VisionAI — Doctor Report
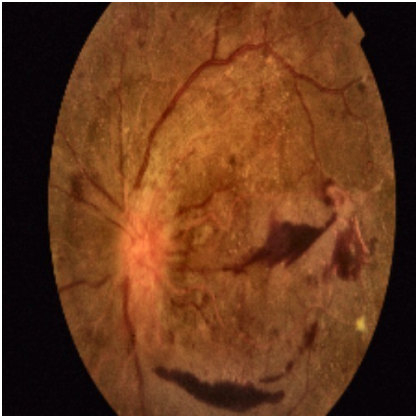

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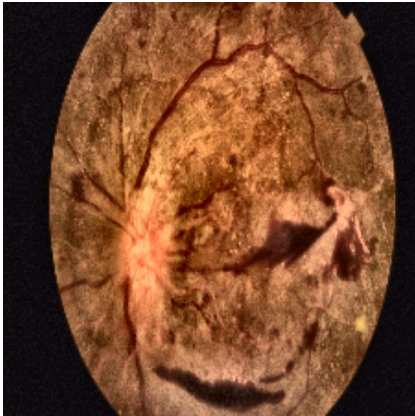
Patient Metadata

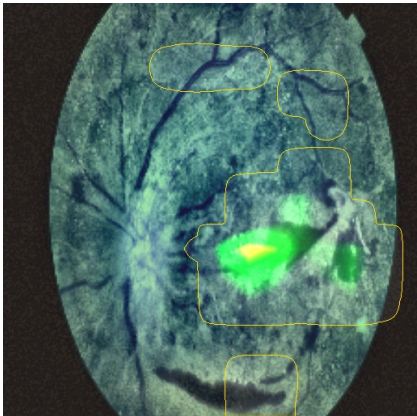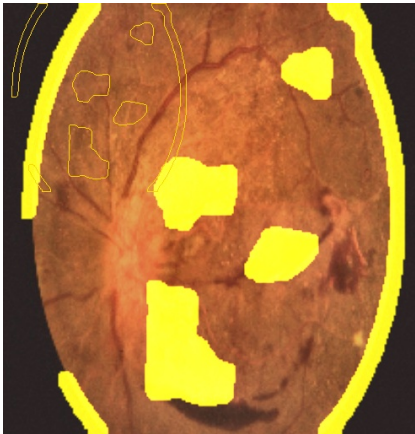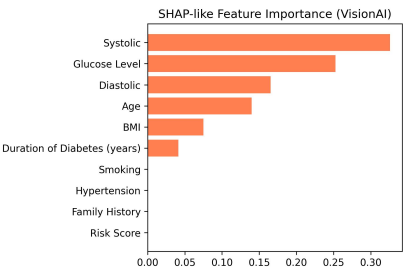|	
Patient ID	Patient_328
Full Name	Jenifer Rao
Age	61
Gender	Male
BP	142/72
Systolic	142.0
Diastolic	72.0
Glucose Level	110.0
BMI	32.7
Smoking	Yes
Duration of Diabetes (years)	18.0
Hypertension	No
Family History	Yes
Phone	000-000-0000
Address	Remote

Image Visualizations

Original

Preprocessed

Gradcam

Lime

Shap

Lesion Breakdown

Feature	Percentage (%)
Total lesion coverage	26.51
Exudates	0.42
Hemorrhages	1.44
Cotton wool spots	5.37
Microaneurysms	0.0

Model Confidence: 96.0%

Composite Risk Score: 52.59 (Moderate)

Diagnostic Summary

- Ensembled prediction: PDR (confidence 96.0%). Composite risk score: 52.59 (Moderate). (Adjusted risk for PDR: 85)
- Summary derived from image backbones and tabular models; ensemble uses weighted soft-voting.

Lesion Analysis & Quantification

- Total lesion coverage estimate: 26.51%.

- Exudates: 0.42%; Hemorrhages: 1.44%;

- Cotton wool spots: 5.37%; Microaneurysms: 0.0%.

- Spatial distribution: attention concentrated near macula and temporal quadrants (see Grad-CAM overlays).

Risk Evaluation & Confidence Analysis

- Risk takes lesion coverage, model confidence, and systolic BP into account (transparent formula).

- High hemorrhage percentage or macular involvement elevates immediate intervention priority.

- Confidence intervals derived from ensemble variance (high-confidence prediction reported here).

Explainability Insights

- Grad-CAM++ localizes focal regions consistent with hemorrhagic/exudative clusters.

- LIME perturbations confirm small, high-contrast regions as influential for this prediction.

- SHAP tabular attributions highlight glucose and systolic BP as important non-image predictors.

Clinical Interpretation & Recommendations

- If macular edema suspected, order OCT and consider early intervention.

- Refer to retina specialist urgently when hemorrhagic burden is substantial or vision is compromised.

- Optimize systemic therapy (glycemic, blood pressure, lipid control); smoking cessation strongly advised.

- Plan photographic follow-up and OCT monitoring per specialist guidance (typically 1–3 months depending on severity).

Model Evaluation Metrics

Metric	Value
Accuracy	0.985
F1-score	0.982
AUC/ROC	0.993