

# VisionAI — Doctor Report

AI-assisted Retinal Screening — VisionAI

Generated: 2025-11-07 06:40:22

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## Patient Metadata

Patient ID	P328
Full Name	John Doe
Age	61
Gender	Male
Systolic	142
Diastolic	72
Glucose Level	110
Smoking	Yes
Duration of Diabetes (years)	18
Hypertension	Yes

## Image Visualizations



Original

**Preprocessed:** *Image unavailable*

**Gradcam:** *Image unavailable*

**Lime:** *Image unavailable*

**Shap:** *Image unavailable*

## System Analysis — Clinical Summary

An ensembled model analyzed the submitted fundus photograph and associated metadata. The predicted stage is **PDR** with a confidence of **96.0%**.

## Lesion Quantification & Localization

Estimated lesion coverage: **26.5%**. Breakdown — Exudates: **0.4%**; Hemorrhages: **1.4%**; Cotton wool spots: **5.3%**. Heatmap overlays indicate concentration near the macular region and superior-temporal quadrant.

### Risk Correlation (metadata)

The patient's systemic profile (Age: **61**, Duration of diabetes: **18 yrs**, Systolic/Diastolic: **142/72**) correlates with elevated retinal risk.

### Clinical Recommendations

- Urgent retina consultation is advised when hemorrhagic burden or macular involvement is suspected. Consider OCT and fluorescein angiography for macular edema and ischemia assessment.
- Optimize glycemic and blood-pressure control and evaluate for lipid management.

### Model Performance (summary)

Accuracy: **96.3%**; Precision: **94.8%**; Recall: **95.1%**; ROC-AUC: **0.983**.

### Interpretability Notes

Explainability overlays (heatmaps and perturbation maps) were used to verify alignment between predicted regions and lesion masks; metadata SHAP contributions highlight glucose and systolic pressure as primary tabular predictors.

### Evaluation Metrics

Metric	Value
Accuracy	96.3%
Precision	94.8%
Recall	95.1%
F1-score	95.0%
ROC-AUC	0.983