

Deep Learning Fundus Image Analysis For Early Detection Of Diabetic Retinopathy

PROBLEM STATEMENT:

Diabetic Retinopathy (DR) is a common complication of diabetes mellitus, which causes lesions on the retina that affect vision. If it is not detected early, it can lead to blindness.

Who does the problem affect?	Persons who have Diabetes mellitus
What are the boundaries of the problem?	The longer you have diabetes and the less controlled your blood sugar is, the more likely you are to develop this eye complication.
What is the issue?	<ul style="list-style-type: none">• Spots or dark strings floating in your vision (floaters)• Blurred vision• Fluctuating vision• Dark or empty areas in your vision• Vision loss

When does the issue occur?	Developing diabetes when pregnant (gestational diabetes) or having diabetes before becoming pregnant can increase risk of diabetic retinopathy.
Where does the issue occur?	The manual diagnosis process of DR retina fundus images by ophthalmologists is time, effort and cost-consuming and prone to misdiagnosis unlike computer-aided diagnosis systems.
Why is it important that we fix the problem?	If it is not detected early, it can lead to blindness. Unfortunately, diabetic retinopathy is not a reversible process, and treatment only sustains vision.
What solution to solve this issue?	DR early detection and treatment can significantly reduce the risk of vision loss
What methodology used to solve the issue?	Deep learning techniques are used for early detection of diabetic retinopathy that can prevent blindness and other eye related diseases.