

Automated Computer Eye Screening Tool

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What is diabetes?

- Diabetes is a disease that affects blood vessels throughout the body, particularly in the kidneys and eyes. When blood vessels in the eye are affected, the condition is referred to as diabetic retinopathy (DR).
- DR is the leading cause of new blindness among adults in the United States.

Eye Screening

- Treatment is necessary to prevent severe loss of vision. Regular eye exams are crucial for all persons with diabetes.
 - Ophthalmologists perform eye exams on a yearly or biennial basis. Specialists are often unavailable in rural areas and other primary health care settings.
- Modern non-mydratiac cameras provide an alternative to conventional eye screening.
 - No eye dilation required, relatively inexpensive, portable, digital image storage.

Computer Tool

- Image analysis to determine the kind of abnormalities present and their location within the eye with respect to the fovea.
- **Four abnormalities which are present in early DR are of interest:**
 - Microaneurysms
 - Hemorrhages
 - Hard Exudates
 - Cotton Wool Spots

Approach

