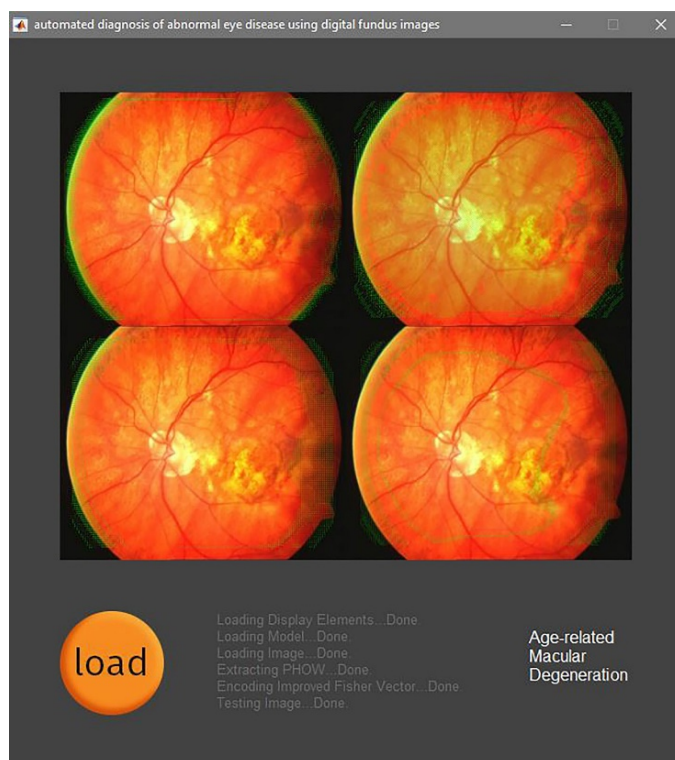
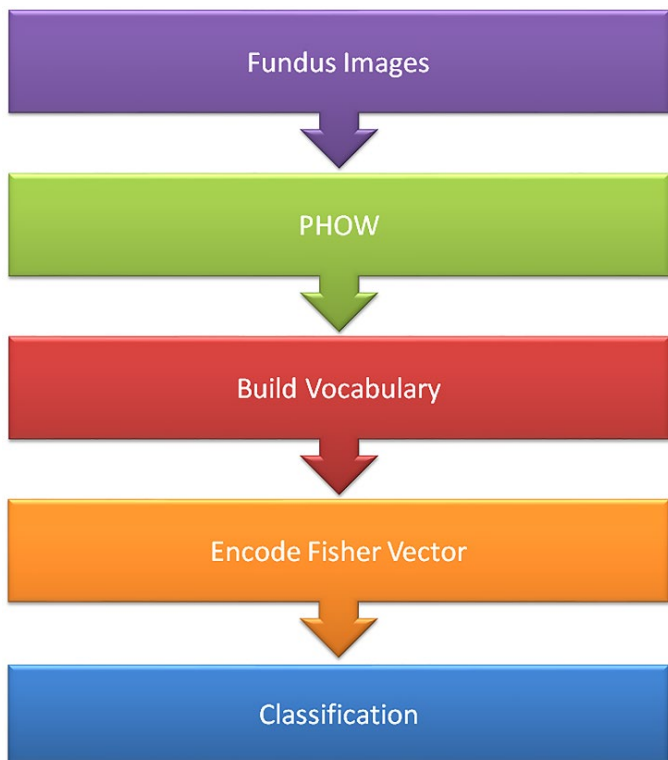


Automated Diagnosis of Abnormal Eye Disease Using Digital Fundus Images



Technology Overview

Loss of sight is prevalent among the elderly subjects. Various eye diseases, such as age-related macular degeneration, diabetic retinopathy and glaucoma are the major causes of loss of vision. Early detection of such diseases can impede the progression of blindness. However, it is time consuming and laborious to conduct mass screening. Hence, computer aided diagnosis can help to overcome these drawbacks.

Technology Features & Specifications

The technology includes a decision support system that can discriminate between the four classes automatically using Pyramid Histogram of Words (PHOW). The extracted features from PHOW are used to build the vocabulary and encoded using Fisher Vector to train the classification model. This system can differentiate the four classes with an accuracy of 96.79%, sensitivity of 96.73% and specificity of 96.96%.

Potential Applications

This technology can be applied to the healthcare industry for eye screening, to support ophthalmologists in diagnosing abnormal fundus images. It can reduce the workload of the ophthalmologists during eye screening hence, increasing productivity and reducing screening time for patients. The technology can be extended to detect other eye diseases like diabetes maculopathy, floaters, retinal detachment and macular hole.

Customer Benefits

Faster screening time and less workload for ophthalmologists.

OVERVIEW

- Technology Status Available
- Technology Readiness Level [TRL5](#)
- Keywords age-related macular degeneration, Bag-of-visual-words, Computer-aided diagnosis system, Diabetic retinopathy, Eye diseases, Fisher vector encoder, Fundus images, Glaucoma, machine learning



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