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Analysis and Detection of Multi-Lesion for Diabetic Retinopathy using CNN Based Approach

Abstract:
Diabetes is a global health concern affecting individuals across all age groups. Diabetic retinopathy (DR), a major ocular complication of diabetes, can lead to vision loss if not diagnosed and treated promptly. Traditional DR detection methods rely on manual examination by specialists, which is time-consuming and inconsistent. Key steps in DR diagnosis include retinal vasculature extraction and optic disc/fovea segmentation. Detecting lesions such as microaneurysms (MA), hemorrhages (HM), and exudates (EX) is essential for determining the DR stage.With advancements in deep learning, Convolutional Neural Network (CNN)-based methods have become prominent in DR research. This study presents a CNN-based framework for segmenting and classifying retinal lesions. A comprehensive literature review is conducted, and the proposed method is evaluated on publicly available datasets.
Keywords: Diabetic Retinopathy, CNN, Retinal Blood Vessel Segmentation, Lesion Detection

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