

Detection Retina Blood Vessel and Diabetic Retinopathy Using CNN

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Abstract: *Diabetic retinopathy (DR) is a prevalent ocular complication of diabetes, often leading to irreversible vision impairment if left untreated. Timely detection and accurate diagnosis are paramount for effective intervention and patient outcomes. This research paper presents a comprehensive investigation into the application of Convolutional Neural Networks (CNNs) for the automated detection of retinal blood vessel abnormalities and diabetic retinopathy. Leveraging a diverse dataset of retinal fundus images, a novel CNN architecture is proposed to identify subtle vascular anomalies and classify different stages of DR. Experimental results demonstrate the efficacy of the CNN-based framework, achieving state-of-the-art performance in terms of accuracy, sensitivity, and specificity. Comparative analyses against traditional methods underscore the potential clinical significance of the proposed approach. This study contributes to the advancement of medical image analysis, offering a promising tool for early DR detection and improving patient care.*

Keywords: *Diabetic retinopathy, Convolutional Neural Networks, medical image analysis, retinal blood vessels, automated detection, deep learning, fundus images, early diagnosis, classification, ocular diseases.etc*

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