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Innovative AI Solution for Diabetic Retinopathy Health

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Abstract: *Current retinal disease detection methods primarily rely on lesion detection techniques or multiple instance learning frameworks, yet they often struggle to effectively represent various lesions from fundus images. This paper introduces an innovative approach leveraging pre-trained convolutional neural networks (CNNs) through transfer learning. The methodharnesses the learning capabilities of recent deep CNN models, augmented by a classifier at the network's end. Additionally, a pre- processing technique tailored is applied to enhance classification outcomes. Experimental validation on Messidor and IDRiD databases showcases significant improvements, achieving accuracies of 96.28% and 94.81% respectively. The proposed method presents a promising avenue for computer-aided diagnosis in retinal screening systems, effectively supporting disease screening through deep learning methodologies*

Keywords: deep learning methodologies