Diabetic Retinopathy Severity Level Detection Using Convolution Neural Network
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ABSTRACT

Diabetic retinopathy is a common complication of diabetes mellitus, leading to damage and blockage of retinal blood vessels. Early and accurate detection of diabetic retinopathy severity levels is crucial for timely treatment and prevention of blindness. Diagnostic methods rely on manual examination and human interpretation, resulting in slower and less efficient treatment processes. As a branch of artificial intelligence, computer vision offers a potential solution to analyze retinal images quickly and accurately. The developed system employs image processing techniques and a CNN based classification model to detect and classify the severity levels of diabetic retinopathy. By providing an automated and efficient approach, the system aims to assist doctors and optometrists in making informed decisions and reducing subjectivity in diagnosis. Early detection through this system can facilitate prompt treatment and improve patient outcomes. The developed system achieves promising results through experimentation and testing with various datasets, with accuracy ranging from 80% to 97%. This project's integration of artificial intelligence, machine learning, and image processing technologies demonstrates their potential in healthcare applications, particularly in diabetic retinopathy diagnosis.

Keywords: *diabetic retinopathy, computer vision, Convolution Neural Network (CNN), image processing*