Retinal image analysis for diabetics and hypertension

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Retinopathy is an acute disease to retina of a human. Retina of a person gets affected due to lifestyle diseases like diabetics and hypertension known as diabetic and hypertensive retinopathy respectively. Diabetic retinopathy is the leading cause of global blindness. The World Health Organization has launched "Vision 2020", a global initiative for the prevention of avoidable visual impairment by the year 2020. Early detection of features often not directly discernible by clinical investigation has the potential to reduce the global burden of diabetes and cardiovascular disease. Fundus photography has made it possible to analyse human retina noninvasively. Engineering tools such as digital image processing combined with advanced machine learning allow identification and automated classification of features like optic disk, macula and blood vessels, lesions and retinal blood vessel changes named microanurysms, haemorrhages, cotton wool spots, hard exudates, venous beading in digital images of the retina. Online databases like DRIVE, HRF, VICAR, Image ret along with ground truths are made available for researchers to work on and compare their results with state-of-the-art methods.

Speaker Biography

Patil Sarika is pursuing PhD in Medical Image Processing under Savitribai Phule Pune University, Pune. She has completed her master's in engineering in June 2008 from SPPU, Pune. She is professor of SPPU University, Pune. She has over 15 publications on her name in various national and international conferences and journals (SNIP and SJR Index). One paper is published in Scopus Indexed journal - Journal of Intelligent and Fuzzy Systems, IOS Press, Netherlands. She has worked on project funded by University of Pune Rs.2,50,000 in image processing. Implemented and proposed various algorithms for various feature and lesion detection in retina using image processing. Till now 11 students have completed their projects at master's degree under her guidance.

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