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Quantification of pterygium redness based on CIELab color space and vesselness filter

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Pterygium is an abnormal growth on the eye which may cause to severe visual disturbance and is highly prevalent in countries close to equator. However, there is lack of research which addresses the severity and properties of the tissue. Mimicking human color perception has commonly adopted using RGB color space; however, it is still inadequate. In this research work, we propose CIELab color space and vesselness filter to objectively quantify redness of 68 pterygium fibrovascular images and compare the results with other 12 color spaces. Experimental results show that CIELab color space shows better representation of human color perception (correlation coefficient=0.68) compared to using vesselness filter (correlation coefficient=0.43). CIELab can serve as a basis for future work on to automate pterygium clinical grading based on tissue redness.

Biography

Mohd Radzi Hilmi is currently pursuing his PhD in Health Science (Optometry) at International Islamic University Malaysia (IIUM). He has completed his Master of Optometry (MOptom) from University of New South Wales (UNSW) Australia in 2011. He has obtained his first degree in Optometry in 2010 from IIUM. His research interests are in anterior segment imaging and corneal and external eye diseases.

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