IMPROVING IMAGE CONTRAST OF DIABETIC RETINOPATHY BY HARMONY SEARCH-BASED GLOBAL LOCAL CONTRAST ENHANCEMENT TECHNIQUE

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ABSTRACT

Diabetic retinopathy is eyesight disturbance due to diabetes. Direct medical observation to the diabetic retinopathy patients is generally carried out by ophthalmologist on the patient's retina image taken from fundus camera. The problem frequently occurring in observing the retina digital image is difficulty in separating normal area from abnormal one due to the low contrast of retina image. The researcher employed Harmony Search-based for improving image contrast by combining MLSD (Modification Local Standard Deviation) and GLCE (Global Local Contrast Enhancement) methods. The accuracy level was measured by AMBE (Absolute Mean Brightness Error) and PSNR (Peak Signal Noise Ratio). Out of 362 retina images taken from STARE database, the average results of accuracy level were 13.84848 by AMBE and 30.46644 by PSNR.

Keywords: diabetic retinopathy, Harmony Search-based GLCE, Harmony Search, STARE, contrast enhancement

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