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An Image Processing Scheme for Skin Fungal Disease Identification

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Abstract : Nowadays, skin fungal diseases are mostly found in people of tropical countries like Sri Lanka. A skin fungal disease is a particular kind of illness caused by fungus. These diseases have various dangerous effects on the skin and keep on spreading over time. It becomes important to identify these diseases at their initial stage to control it from spreading. This paper presents an automated skin fungal disease identification system implemented to speed up the diagnosis process by identifying skin fungal infections in digital images. An image of the diseased skin lesion is acquired and a comprehensive computer vision and image processing scheme is used to process the image for the disease identification. This includes colour analysis using RGB and HSV colour models, texture classification using Grey Level Run Length Matrix, Grey Level Co-Occurrence Matrix and Local Binary Pattern, Object detection, Shape Identification and many more. This paper presents the approach and its outcome for identification of four most common skin fungal infections, namely, Tinea Corporis, Sporotrichosis, Malassezia and Onychomycosis. The main intention of this research is to provide an automated skin fungal disease identification system that increase the diagnostic quality, shorten the time-to-diagnosis and improve the efficiency of detection and successful treatment for skin fungal diseases.
Keywords : Circularity Index, Grey Level Run Length Matrix, Grey Level Co-Occurrence Matrix, Local Binary Pattern, Object detection, Ring Detection, Shape Identification
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