International Journal of Contemporary Research in Computer Science and Technology (IJCRCST) ISSN: 2395-5325
Volume 3, Special Issue 3 (September '2017)
Proceeding of - International Conference on Recent Trends in Computational Life Science and Information Technology,
Conference held at Tiruppur Kumaran College for Women,Tirupur, Tamilnadu,India.

DIAGNOSIS OF DERMIS SYNDROME USING COLOR SPACING AND HISTOGRAM PROCESSING TECHNIQUES OF IMAGE PROCESSING IN ANTHROPOID

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Abstract : Skin dermis is mostly found in humans, animals and plants. A skin defects is a particular kind of infection caused by bacteria or virus. These diseases like alopecia, ringworm, yeast infection, brown spot, allergies, eczema etc. have various perilous effects on the skin and keep on spreading over time. It becomes imperative to diagnose these defects at their pioneer stage to control it from spreading. These diseases are sanctioned by using many technologies such as image processing, data mining, artificial neural network (ANN) etc. Recently, image processing has played a primary role in this area of research and has generally used for the detection of skin diseases. In this paper we investigate two methods for describing the contents of images. The first one characterizes images by colour spacing, while the second is based on histogram and histogram equalization approach and feature extraction etc. are part of image processing and are used to describe the part affected by disease, the form of affected area, its afflicted area colour etc. An exhaustive learning of skin disease diagnosis systems are done in this paper, with different methods and their performances. These techniques are carried out with an experiment by using MATLAB software. It is found that further modifications are needed to produce better performance in searching images.

Keywords— Image Processing, Skin Diseases, Color Space, Histogram Techniques and Histogram Equalization.

I.INTRODUCTION

The image processing methods are to perform some operations on an image using statistical operations, in order to get an enhanced image or to extract some useful information from it. It is a type of signal processing in which the input is an image and the output may be image or a set of characteristics or features associated with that image. Image processing is closely related to computer graphics and computer vision. In modern sciences and technologies, images also increase much extensive scopes due to the ever growing importance of scientific revelation (of often large-scale complex scientific/tentative data). In the image processing and computer perception of intensity, aspect and structures are important .But the structure based study is most important in exterior analysis. Skin is the surface of the body having some texture; infected skin has different types in the texture of the skin. The infected skin is illustrious from dermatitis which is inflammation is called infective dermatitis.

II.LITERATURE SURVEY

Many approaches have been proposed to analyze and recognize textures in an automated fashion. In [1] Y. P. Gowramma.et al. (2014) proposes an algorithmic representation for automatic classification of skin diseases using curvelet filter along with the k-nn classifier and it is segmented using a marker-controlled watershed segmentation method. In [2] A. A. L. C. Amarathunga.et al. (2015) proposes the skin disease diagnosis system which to uses the technologies such as image processing and data mining for the image is immediately segmentation of images using threshold values and to suggest the medical treatments. In [3] Valentin Lynbchenko. et al. (2016) proposes a computational approach for analyzing the fauna and flora, and the detection and diagnose of diseases by applying the methodology of color image segmentation. It makes to automate the process and reduce the time of diagnosis of infectious dangerous fish diseases. In [4] Nisha Yadav. et al. (2016) proposed a skin disease is caused by bacteria or an infection these diseases like alopecia, ringworm, yeast infection, brown spot, allergies, eczema, etc by using many technologies such as image processing, data mining, artificial neural network. The detection techniques like filtering, segmentation, feature extraction, image pre-processing and edge detection. In [5] R. Yogamangalam. et al. (2013) have been proposes a brief online on most common segmentation techniques like thresholding, model and edge based detection, clustering and so on. It uses the Markor Random Field (MRF) method of noise cancellation in images. In [6] R. Sumithra. et al. (2015) proposes the skin images are filtered to remove the unwanted hairs and noise for using the segmentation techniques and the classification of skin lesions for disease diagnosis the SVM, K-NN classifiers and Computer Aided Diagnosis (CAD). In [7] Damilola A. Okubayejo. et al. (2013) proposed the cancerous skin disease such as melanoma and nevi there have been high expectations for techniques such as Dermoscopy or Epiluminiscence Light Microscopy (ELM) and modeling a system that will collate past Pigmented Skin Lesion (PSL) by medical experts using prototyping methodology. It uses the computational intelligence techniques to analyze process and classify the image library data based on texture and phonological features of the

medical images for remote health diagnosis in the skin disease. In [8] Jamils A. M. Saif. et al. (2016) proposed the image of edge detection in image analysis, object recognition used to detect the edges of object in the image. This paper address the problem of gradient based image edge detection to produced the binary images using the medical as well as natural images. In [9] Ms. Kabade Manarnika Manohar. et al. (2016) proposed the classic and visual issues in image processing it has been the hotspot for the researchers to makes the image more simple and meaningful. It covered a review on segmentation techniques such as thresholding, edge based, region based and clustering approaches. In [10] Sujata Saini. et al. (2014) proposes the image segmentation algorithms to segmented the complexity image used in the image processing applications, computer vision and so on. It provides the emphasized of edge based, region based techniques and watershed transformation.

III.METHODOLOGY

A. Problem Identification

Human skin is a complicated to understand the skin problem due to the pigment structure, melanin and hemoglobin are the pigments in the skin, if slight variation occurs in the pigment, there occurs change of color in the skin, By consider the skin texture, a lot of perception can be made in regard to the nature and crassness of the skin. Skin diseases are spreading of the infection from one individual to the other. So it is needed to cautious as to the skin care. When the skin diseases are detected by using the array indexing techniques and segmentation they are edge based method and ANN concept of feed backward algorithm. The following are some of common skin diseases,

Figure1: Chronic dermatitis

- skin appear skinny and itches
- can split and ooze liquefied
- skin pertrify and appears
- brown and thick in ensuing stages
- ulcer forms in eventual stages

Figure2: Lichen plans

- purplish-colors bumps with flush acme
- lesions that establish and spreading over the course of two weeks to a few months
- itching,furuncle, and white lines over the hives

Figure3: Pityriasis Rosacea

- subtype 1: flush,redness, and broken bloos vessels
- subtype 2: zits-like breakouts,redness, and oily skin
- subtype 3: choppy skin,hard shell on nose,forehead,cheeks,and ears
- subtype 4: bloody,anemic,arid, and itchy eyes

Figure4: Psoriasis

- plaque: chunky red patches of skin
- face and sclap
- inverse: a red,sparkly,smooth,irritation in skin folds guttate: small red acne on the boody,arms
- pustular: whiteheads surrouned by red derma
- erythrodermic: resembles cruel burns and covers huge portions of the body

Figure5: Seborreheic dermatitis

- yellow or white peeling patches that fleck off
- affected areas may be red,scratchy, and oily
- hair loss may arise in the area with the rash

B. Colour Space

A color space is defined as a model for instead of color in terms of intensity values. Typically, a color space defines a one-to-four dimensional space. A color component or a color channel is one of the dimensions. A color dimensional space (i.e. one dimension per pixel) represents the gray scale space.

The RGB Color Model

The RGB model uses three primary colors, red, green and blue, in an additive fashion to be able to reproduce other colors. As this is the basis of most computer displays today, this model has the advantage of being easy to extract. In a true-color image each pixel will have has a red, green and blue value ranging from 0 to 255 giving a total of 16777216 different colors.

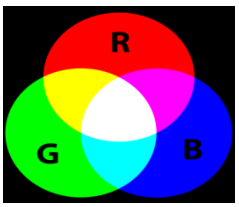

Figure6: Additive mixing of red, green and blue [6]

One disadvantage with the RGB model is its behaviour when the illumination in an image changes. The distribution of RGB- values will change proportionally with the illumination, thus giving a very different histogram equalization and histogram.

C. Histogram Techniques

An image histogram is a type of histogram that performs as a graphical representation of the total propagation in a digital image. It plots the number of pixels for each tonal

value. Image histograms are present on many modern digital cameras. Photographers can use them as a support to show the allocation of tones captured, and whether image detail has been lost to blown-out highlights or blacked-out shadows. This is less useful when using a raw image format, as the dynamic range of the displayed image may only be an approximation to that in the raw file.

The horizontal affiliation of the graph produced the tonal deviations, while the vertical axis represents the number of pixels in that exact tone. The left side of the horizontal axis produced the black and dark areas, the middle represents medium grey and the right hand side represents light and pure white areas. The vertical affiliation produced the size of the area that is captured in each one of these zones. Thus, the histogram for a very dark image will have the majority of its data points on the left side and center of the graph. Conversely, the histogram for a very bright image with few dark areas and/or shadows will have most of its data points on the right side and center of the graph.

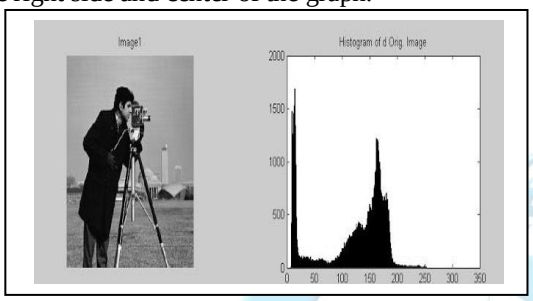

Figure7: shows an illustrating example of using Histogram for image contrast enhancement.

D. Histogram Equalization

Histogram equalization is a spatial domain process that harvests output image with uniform disposal of pixel intensity means that the histogram of the output image is flattened and comprehensive consistently. This approach customarily works for image enhancement paradigm because of its simplicity and comparatively better than other traditional methods. We acquire the probability mass function (PMF) and cumulative density function (CDF) via the input image histogram. Apply these two functions PMF and CDF for substitution the input image gray levels into the new gray levels, and then cause the processed image and histogram for the resultant image. And when distinguish input image histogram with the processed image histogram we found that the gray level depth are extended and dejected systematically. Consequently, obtain that the histogram of the yield image is scientifically distributed.

Yet, this accords the over enhancement in images above the actual gray scale span. During this approach the mean brightness of the refined image is always the middle gray level without regarding of the input mean. This procedure is not incredibly convenient to be imposed in consumer electronics, such as television, by the reason of that the method tends to establish irrelevant visual decline like the concentration effect. The meticulous clarification for this issue is to conquer this weakness is by maintaining the mean brightness of the input image interior the output image. Figure 8 shows an illustrating example of using Histogram Equalization (HE) for image contrast enhancement.

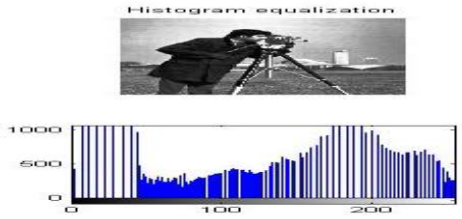

Figure8: Histogram Equalization

IV.RESULTS AND DISCUSSION

Figure (figure to figure) shows the various kinds of diseases infected to the skin in various parts. We have used the software MATLAB R2013a and the hardware 2GB RAM Intel core i3 to obtain the desired results. Color spacing, histogram and histogram equalization techniques are applied on the diseased part of the skin and observed the resulting output image which gives good clarified region of the disease.

Figure9: shows an illustrating chronic dermatitis disease result of using color spacing of red plane for image contrast enhancement.

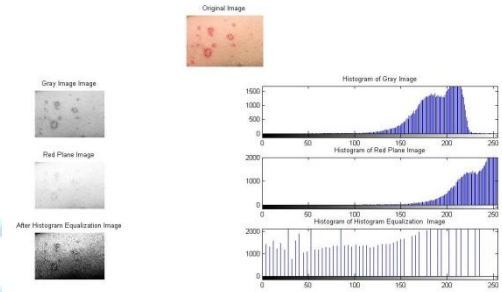

Figure9: Red Planes for Image Contrast Enhancement

Figure10: shows an illustrating chronic dermatitis disease result of using color spacing of green plane for image contrast enhancement.

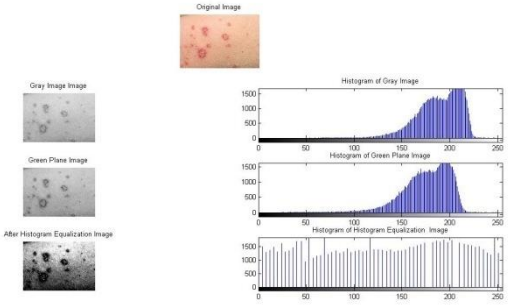

Figure10: Green Planes for Image Contrast Enhancement

Figure 11 shows an illustrating chronic dermatitis disease result of using color spacing of blue plane for image contrast enhancement.

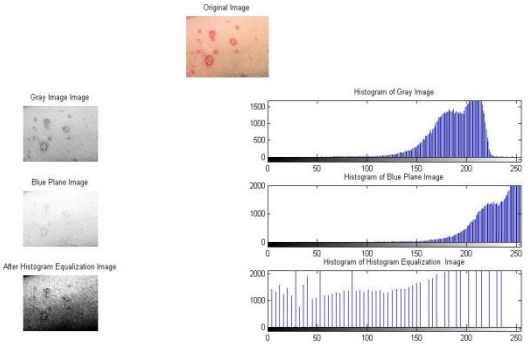

Figure11: Blue Planes for Image Contrast Enhancement

V.CONCLUSION

The main locus of this paper is on consider the texture of skin there by using it to diagnose the skin defects. From the experiential results discussed above, our proposed RGB color spacing and histogram techniques for image contrast enhancement can serve as an effective tool in identifying skin diseases. The eventual work will be based on establishing algorithms to identify various other skin diseases, to progress the overall performance and also to further reduce the computational time. There are future scopes of developments in present methodologies as no model assurance hundred percent accuracy and is also limited to few number of skin diseases. In future techniques can be expanded for the detection of skin diseases in humans. A common model should be developed for identification of all types of skin disease.

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