

# Skin Color Detection for Skin Cancer Analysis

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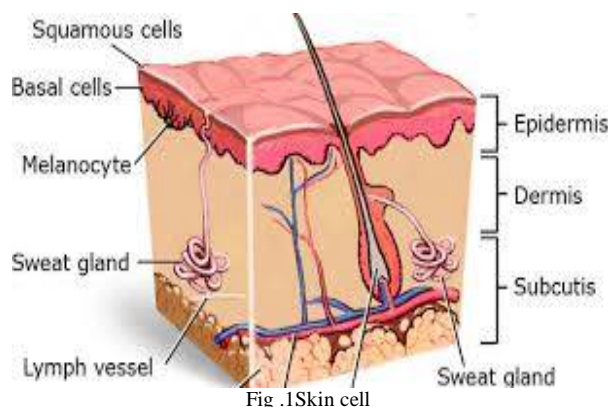
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**ABSTRACT:** Today most of people die due to cancers. One of the cruel cancers is skin cancer. Skin cancer may appear as tumors in the form of malignant or benign. Benign Melanoma is simply appearance of some pores and holes on skin such as mole, etc. Malignant melanoma is the look of sore like structures that create bleeding or the flow of blood. Skin cancer is now becoming a challenging issue to identify the exact location of affection on the skin tone. The color changes in the skin may be also a way for skin cancer. In this research few skin color detection methods are analyzed and discussed.

**KEYWORDS:** benign, malignant, squamous, tumors.

## I. INTRODUCTION

Skin cancer is a disease in which malignant cells are found in the outer layers of the skin. The skin protects our body against heat, light, infection, and injury. It also stores water, fat, and vitamin D. The skin has two main layers and several kinds of cells. The top layer of skin is called the epidermis. It contains three kinds of cells: flat, scaly cells on the surface called squamous cells; round cells called basal cells; and cells called melanocytes, which give our skin its color.



Sunburn and UV light can damage your skin, and this damage can lead to skin cancer. There are of course other determining factors, including our heredity and the environment you live in. However, both the total amount of sun received over the years, and over exposure resulting in sunburn can cause skin cancer. Most people receive 80% of their lifetime exposure to the sun by 18 years of age. The message to parents from this is to protect your children.

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## II. SKIN COLOR DETECTION USING IMAGING TECHNIQUE

Skin color detection is computationally efficient yet invariant of rotation, scaling and occlusion. The main challenges of skin color detection are illumination, ethnicity background, make-up, hairstyle, eyeglasses, background color, shadows and motion. Most of the skin color detection problems could be overcome by using infrared and spectral imaging. However, such systems are expensive as well as cumbersome to implement.

## III. PIXEL-BASED SKIN COLOR DETECTION TECHNIQUES

Pixel-based skin detection methods, that classify each pixel as skin or non-skin individually, independently from its neighbors. In contrast, region-based methods, try to take the spatial arrangement of skin pixels into account during the detection stage to enhance the methods performance. Pixel-based skin detection has long history, but surprisingly few papers that provide surveys or comparisons compared nine chrominance spaces and two parametric techniques Gaussian and mixture of Gaussians models.

## IV. NEW FAST SKIN COLOR DETECTION TECHNIQUE

KIN detection is a very popular and useful technique for detecting and tracking human-body parts. It receives much attention mainly because of its wide range of applications such as, face detection and tracking, naked people detection, hand detection and tracking, people retrieval in databases and Internet, etc. The main goal of skin color detection or classification is to build a decision rule that will discriminate between skin and non-skin pixels. Identifying skin colored pixels involves finding the range of values for which most skin pixels would fall in a given color space. In general, a good skin color model must have a high detection rate and a low false positive rate. That is, it must detect most skin pixels while minimizing the amount of non-skin pixels classified as skin. Commonly used skin detection algorithms can detect skin regions accurately. A comprehensive survey on skin detection algorithms can be found. The major problem of such kinds of algorithms is that it is time consuming and hence cannot be applied to a real time system. It works by uniformly resizing the image to a target size. Recently, there is a growing interest in image retargeting that seeks to change the size of the image while maintaining the important features intact. Changing the size of the image has been extensively studied in the field of texture synthesis, where the goal is to generate a large texture image from a small one. This way, the original small texture image is quilted to form a much larger texture image. that showed how to increase the space and time dimensions of the original texture video. Many fast skin color detection techniques are based on the image resizing .To overcome the time consuming problem in skin color detection, we introduce a new fast technique for skin detection which can be applied in a real time system. In this technique, instead of testing each image pixel to label it as skin or non-skin, we skip a predetermined number of pixels. The reason of the skipping process is the high probability that neighbors of the skin color pixels are also skin pixels, especially in adult images and vice versa. The skipping process can be applied with the resizing technique to obtain better results. This hybrid technique takes the advantages of both methods. The paper presents some experimental results to evaluate the performance of the proposed skipping and hybrid techniques in terms of the measured CPU time. The proposed skipping and hybrid techniques are given. Experimental results used to evaluate the performance of these techniques are described in section. Finally, our conclusion and future work are presented.

## V. THE YCRCB COLOR SPACE

The choice of color space can be considered as the primary step in skin-color classification. The RGB color space is the default color space for most available image formats. Any other color space can be obtained from a linear or non-linear transformation from RGB. The color space transformation is assumed to decrease the overlap between skin and non-skin pixels thereby aiding skin-pixel classification and to provide robust parameters against varying illumination conditions.

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## VI. CONCLUSION

. To reduce skin cancers in the population, people must get the information they need to make informed choices about sun protection, policies must support these efforts, youth must be protected from harms of indoor tanning, and adequate investments need to be made in skin cancer research and surveillance. Achieving these goals will not be a small task. It will require dedication, ingenuity, skill, and the concerted efforts of many partners in prevention across many different sectors. Many of these partners are already enthusiastically involved, but greater coordination and support are needed to increase the reach of their efforts. The strategies outlined in this paper are the next steps.

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