Advanced Method Using Find and Detection Skin Cancer Classification

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--Abstract--

A skin cancer detection method based on Hybrid Classification with Support Vector Machine (SVM) and KNN (K Nearest Neighbor) will propose. Skin cancer is an abnormal growth of cells inside the skull. To examine the location of tumor in the skin, Magnetic Resonance Imaging (MRI) is used. Radiologists will evaluate the grey scale MRI images. This procedure is really time and energy consuming. To overcome this problem, an automated detection method for skin tumor using SVM and KNN is developed. By using the template in the SVM simulator, output of the desired image can be performed. Therefore, many templates were combined in order to obtain an accurate result that will help radiologists detecting the tumor in skin images easily. In extension of this work will implement in video analysis for MRI tumor detection for effective segmentation analysis will proposed. The Skin Cancer Foundation has set the standard for educating the public and the medical profession about skin cancer, its prevention by means of sun protection, and the need for early detection and prompt, effective treatment. It is the only international organization devoted solely to combating the world's most common cancer. Support Machine Vector method is clarity and accurate identify the images. It's most advanced method better than SYM. SYM is existing process of the SVM. K Nearest Neighbor is used for another method of the image processing in Skin Cancer identifying. It's mainly used for the must which pixel affect in the cancer it's identify the clearly and separate spot in the cancer in the skin. it's given result is the very easily and identify the normal and abnormal of the cancer affect in the skin. In this two method is best effectively and advanced method in used the skin cancer

Keywords**: Support Vector Machine, K nearest Neighbor, Magnet**ic **Resonance Image, Skin Cancer**

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INTRODUCTION

Skin cancer is by far the most common type of cancer. If you have skin cancer, it is important to know which type you have because it affects your treatment options and your outlook (prognosis). If you aren't sure which type of skin cancer you have, ask your doctor so you can get the right information. The death rate from cancer in the US has declined steadily over the past 2 decades, according to annual statistics reporting from the American Cancer Society. The death rate from cancer in the US has declined steadily over the past 2 decades, according to annual statistics reporting from the American Cancer Society. The death rate from cancer in the US has declined steadily over the past 2 decades, according to annual statistics reporting from the American Cancer Society. The cancer death rate for men and women combined fell 25% from its peak in 1991 to 2014, the most recent year for which data are available. This decline translates to more than 2.1 million deaths averted during this time period _"Cancer Statistics, 2017,"_ published in the American Cancer Society's journal CA: A Cancer Journal for Clinicians, estimates the numbers of new cancer cases and deaths expected in the US this year. The estimates are some of the most widely quoted cancer statistics in the world.

The information will also be released in a companion report, _Cancer Facts & Figures 2017_ and will be available on the interactive website, the Cancer Statistics Center. A total of 1,688,780 new cancer cases and 600,920 deaths from cancer are projected to occur in the US in 2017.During the most recent decade of available data, the rate of new cancer diagnoses decreased by about 2% per year in men and stayed about the same in women. The cancer death rate declined by about 1.5% annually in both men and women "The continuing drops in the cancer death rate are a powerful sign of the potential we have to reduce cancer's deadly toll," said Otis W. Brawley, MD, FACP, chief medical officer of the ACS. Continuing that success will require more clinical and basic research to improve early detection and treatment, as well as creative new strategies to increase healthy behaviors nationwide. Finally, we need to consistently apply existing knowledge in cancer control across all segments of the population, particularly to disadvantaged groups." Skin cancer is the abnormal growth of skin cells and most often develops on skin exposed to the sun. But this common form of cancer can also occur on areas of your skin not ordinarily exposed to sunlight. There are three major types of skin cancer basal cell carcinoma, squalors cell carcinoma

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and melanoma. You can reduce your risk of skin cancer by limiting or avoiding exposure to ultraviolet (UV) radiation. Checking your skin for suspicious changes can help detect skin cancer at its earliest stages. Early detection of skin cancer gives you the greatest chance for successful skin cancer treatment.

II. SELECTION OF SKIN CANCER IMAGE DATA

Skin cancers are cancers that arise from the skin. They are due to the development of abnormal cells that have the ability to invade or spread to other parts of the body.
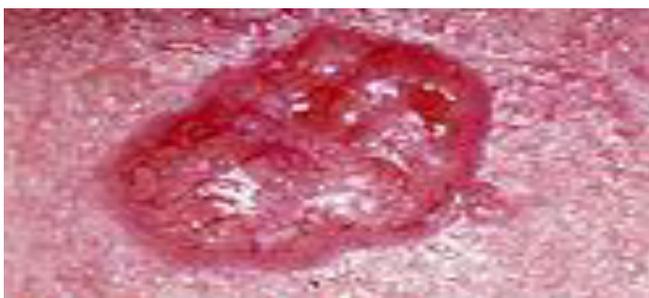

Figure 1.1 cancer affect   in the skin

It is a common and locally destructive cancerous (malignant) growth of the skin. It originates from the cells that line up along the membrane that separates the superficial layer of skin from the deeper layers. Unlike coetaneous malignant melanoma, the vast majority of these sorts of skin cancers have a limited potential to spread to other parts of the body (metastasize) and become life-threatening. The most common risk factors for skin cancer are as follows.   Ultra violet light exposure, either from the sun or from tanning beds . Fair-skinned individuals, with hazel or blue eyes, and people with blond or red hair are particularly vulnerable. The problem is worse in areas of high elevation or near the equator where sunlight exposure is more intense A chronically suppressed immune system (immunosuppressant) from underlying diseases such as HIV/AIDS infection   or cancer,   or   from   some medications   such   as prednisone or   chemotherapy Exposure to ionizing radiation (X-rays) or chemicals known to predispose to cancer such as arsenic Certain types of sexually acquired wart virus There are three major types of skin cancer: (1) basal cell carcinoma (the most common) and (2)squalors cell carcinoma (the second most common), which originate from skin cells, and (3) melanoma, which originates from the pigment-producing skin cells but is less common, though more dangerous, than the first two varieties.

2.1 Symptoms of Skin Cancer

Sunlight contains ultraviolet light that is harmful to human skin cells. These energetic light waves can produce mutations in the DNA of skin cells, which in turn can lead to skin cancer. In areas close to the equator, the incidence of coetaneous cancers is dramatically higher due to the increase in sun exposure. The most obvious skin cancer warning sign is the development of a persistent bump or spot in an area of sun-damaged skin. These spots are likely to bleed with minimal trauma and produce a superficial

2.2 Ultraviolet Light and Skin Cancer

Ultraviolet rays are classified by three types: UVA, UVB, and UVC. UVC is very dangerous, but it does not reach the earth's surface due to the ozone layer. Exposure to both UVA and UVB radiation poses potential skin cancer risks.

2.3 UVA RADIOLOGST

UVA light is the most abundant source of solar radiation. Scientists think it can penetrate the top layer of skin, potentially damaging connective tissue and causing skin cancer. An estimated 50% of UVA exposure occurs in the shade. Light skin is far more vulnerable to UVA radiation: while dark skin allows only 17.5% of UVA to penetrate, light skin allows 55% of UVA light to pass through.

III. HOW SKIN CANCER DEVELOPS

UV light causes skin cancer by damaging the skin's cellular DNA. That damage is caused by free radicals, which are hyperactive molecules found in UV light. Free radicals cause damage to the DNA double helix, changing the way cells replicate and naturally die, which is how cancer develops. In addition to sun exposure, free radicals are also found in environmental pollutants, cigarette smoke, alcohol, and other

Figure 1.2 Actinic Kurtosis (Solar Kurtosis)

Actinic Kerasotes are scaling, horny, red, tender bumps present in sun-exposed areas. They are essentially very thin skin cancers that have not yet penetrated into deeper tissues. Large areas of skin thus exposed over years can result in what has recently been called a concretization field defect. Continued exposure to

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ultraviolet light will likely induce invasive malignancies. Prevention and treatment of this condition which is most common in less-pigmented people is a significant part of medical skin care.

3.2 Identifying Cancerous Moles

The word "mole" is probably derived from a German word meaning spot. In the context of skin, a mole is a long-lasting skin spot that is a little darker than a freckle. Since there are a variety of benign and malignant skin growths which fulfill this description, more precision is necessary. The number of moles present on a particular person is most closely related to skin color and the extent of exposure to sunlight during childhood. The average number of moles is about 35 per person in Northern European populations.

3.3 Melanocyctic nevus

Moles that are Melanocytic nevi (nevus singular) are local growths of melanocytes which can be present at birth or may develop after birth well into the third decade. They vary in color from black to flesh-colored. A melanocytic nevus can develop into melanoma, particularly if the nevus is large. The risk of a congenital melanocytic nevus developing into melanoma is greater for children under 10, which account for 70% of all cases.

Figure 1.3   cancer affect in stomach

4 SUPPORT VECTOR MACHINE & K NEAREST NEIGHBOR

SVMs can be used to solve various real world problems:

- SVMs are helpful in text and hypertext categorization as their application can significantly reduce the need for labeled training instances in both the standard inductive and transductive settings.

- Classification of images can also be performed using SVMs. Experimental results show that SVMs achieve significantly higher search accuracy than traditional query refinement schemes after just three to four rounds of relevance feedback. This is also true of image segmentation systems, including those using a modified version SVM that uses the privileged approach as suggested.

Hand-written characters can be recognized using SVM.

- The SVM algorithm has been widely applied in the biological and other sciences. They have been used to classify proteins with up to 90% of the compounds classified correctly. Permutation tests based on SVM weights have been suggested as a mechanism for interpretation of SVM models. Support vector machine weights have also been used to interpret SVM models in the past. Pashto interpretation of support vector machine models in order to identify features used by the model to make predictions is a relatively new area of research with special

- Significance in the biological sciences.

4.1   I – Nearest Neighbor Interpolation:

Nearest neighbor interpolation is the simplest approach to interpolation. Rather than calculate an average value by some weighting criteria or generate an intermediate value based on complicated rules, this method simply determines the "nearest" neighboring pixel, and assumes the intensity value of it. Although the sharpness of the original image is retained, we notice how the image on the left of an 'X' has "jaggier" (jagged edges) and the image on the right looks pixel and distorted. This is referred to as aliasing, and there are several ways to deal with it. Two of the most straightforward ways are using a better interpolation method, as covered on the proceeding subsection on interpolation, or the use of spatial domain image filtering, which is covered in the sections on filtering. Finally, included below is the code used to generate the above results, along with the nearest neighbor algorithm MATLAB code rewritten as a MATLAB M-function for convenience.

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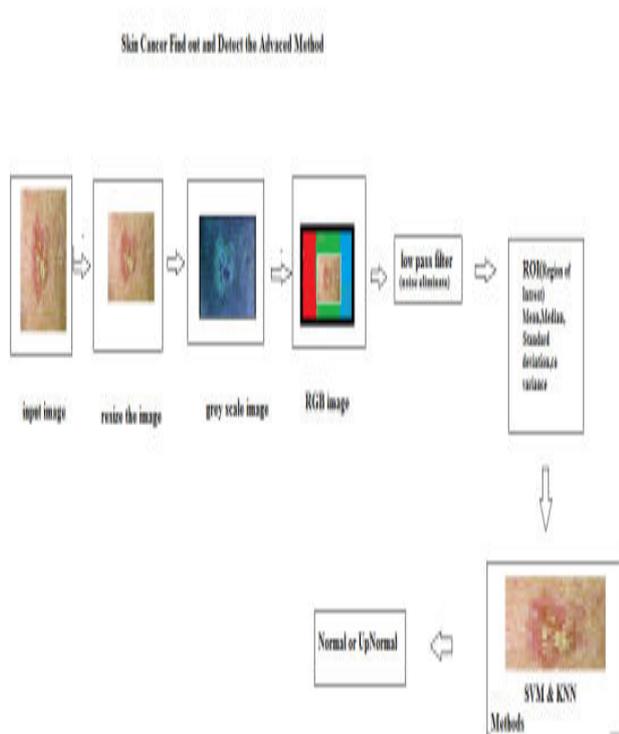
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5. RESULT

Figure 1.4 Skin cancer detect process diagram

VI. CONCLUSION

The conclusion of the Skin Cancer detection is the Support Vector Machine (SVM), K Nearest Neighbor (KNN) method is the most advanced and clarity of the pixel identification in the skin cancer. The Skin cancer avoiding is mainly high level Sun Races, allergies and most of Readies Races in the our skin

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