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DERMATIFY: Skin Disease Detection using ML

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Abstract - Dermatify is a project aimed at developing a machine learning model for automated skin lesion detection and classification. The objective of the project is to create a reliable and accurate tool for dermatologists and healthcare professionals to aid in the diagnosis and treatment of skin diseases. The machine learning model is trained on a large dataset of skin lesion images and utilizes state-of-the-art image processing and classification techniques. The model is designed to identify various types of skin lesions, including malignant and benign ones, with high accuracy. The ultimate goal of Dermatify is to improve the efficiency and accuracy of skin lesion diagnosis, leading to better patient outcomes and healthcare cost savings.

Key Words: detection , diagnosis, machine learning

1.INTRODUCTION

Skin disease is the most common disease in the world. The diagnosis of the skin disease requires a high level of expertise and accuracy for dermatologist, so computer aided skin disease diagnosis model is proposed to provide more objective and reliable solution. Many researches were done to help detect skin diseases like skin cancer and tumor skin. But the accurate recognition of the disease is extremely challenging due to the following reasons: low contrast between lesions and skin, visual similarity between Disease and non-Disease area, etc. This paper aims to detect skin disease from the skin image and to analyze this image by applying filter to remove noise or unwanted things, convert the image to grey to help in the processing and get the useful information. This help to give evidence for any type of skin disease and illustrate emergency orientation

2. Body of Paper

Skin diseases are so common and patients present in such large numbers in primary care settings that ignoring them is not a viable option. Children, in particular, tend to be affected, adding to

the burden of disease among an already vulnerable group.

Morbidity is significant through disfigurement, disability, or symptoms such as intractable itch, as is the reduction in quality of life. For instance, the morbidity from secondary cellulitis in lymphatic filariasis, which may lead to progressive limb enlargement, is severe, and subsequent immobility contributes to social isolation.

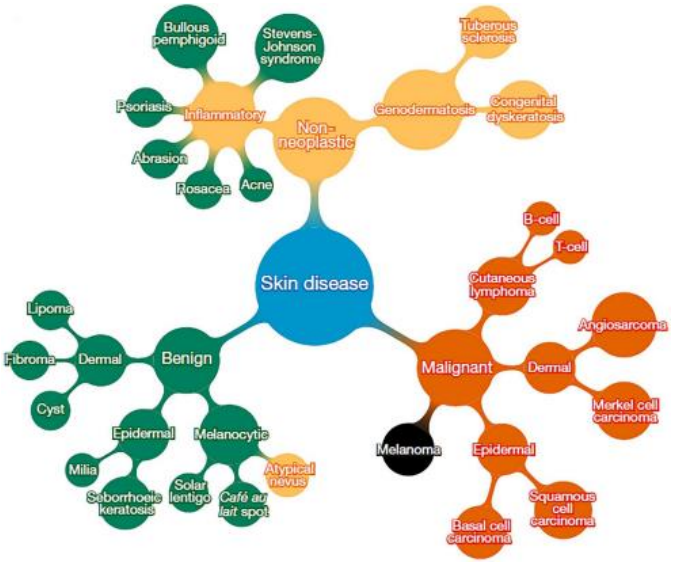

Fig -1: Figure

Charts

Disease	Total	Season		P
		Winter and spring (n=1691)	Summer and autumn (n=1360)	
Eczema/dermatitis	595	333 (19.7)	262 (19.3)	.767
Viral infection	507	289 (17.1)	218 (16.0)	.434
Pilosebaceous disorders	440	227 (13.4)	213 (15.7)	.071
Pigmentary disorders	341	210 (12.4)	131 (9.6)	.015[a]
Hair disorders	231	127 (7.5)	104 (7.6)	.947
Papulosquamous disorders	158	100 (5.9)	58 (4.3)	.041[a]
Urticaria	154	89 (5.3)	65 (4.8)	.497
Fungal infection	151	85 (5.0)	66 (4.8)	.753
Bacterial infection	120	77 (4.6)	43 (3.2)	.053
Protozoal infection	92	34 (2.0)	58 (4.3)	.001[a]
Keratinization disorders	42	25 (1.5)	17 (1.2)	.471
All other	220	95 (5.6)	125 (9.2)	.001[a]

Values are number (percent).

3. CONCLUSIONS

Skin Diseases are ranked fourth most common cause of human illness, but many still do not consult doctors. We presented a robust and automated method for the diagnosis of dermatological diseases. Treatments for skin are more effective and less disfiguring when found early. In this work a model for prediction of skin diseases is done using deep learning algorithms. It is found that by using the Convolutional neural network we can achieve a higher accuracy rate. As the previous models done in this field of application were able to report a very few types of skin diseases with lower accuracy, by implementing deep learning algorithm we can predict various types of skin diseases. But in our model,

we have taken only five types of skin diseases for training, Eczema, Nail Fungus, Melanoma, Bullous Pemphigoid and Vascular Tumour which has accuracy level of 85%, 80%, 90%,

70% and 80% respectively. This proves that Convolutional neural network algorithms have a huge potential in the real-world skin disease diagnosis. If even a better system with high end system hardware and software with a very large dataset is used the accuracy can be increased considerably and the model can be used for clinical experimentation as it does have any invasive measures. Future work can be extended to make this model a standard procedure for preliminary skin disease diagnosis method as it will reduce
the treatment and diagnosis time and cost.

ACKNOWLEDGEMENT

I would like to commend the Dermatify team for their unwavering dedication to patient care. Their empathetic approach, combined with their depth of knowledge and skill, has helped transform the lives of individuals suffering from various dermatological conditions. By providing personalized and effective treatment options, Dermatify has empowered patients to regain confidence and embrace a healthier, happier life.

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