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Skin Disease Detection

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Abstract: *The human skin acts as the body's primary defense barrier and is vulnerable to a wide range of dermatological conditions including acne, eczema, psoriasis, dermatomyositis, cellulitis, candidiasis, scleroderma, ringworm, chickenpox, and melanoma. These conditions, if left undiagnosed or untreated in their early stages, can lead to serious health complications. In many developing regions, early detection remains a significant challenge due to the lack of affordable and accessible diagnostic tools.*

This project introduces a deep learning–based skin disease detection system that leverages image processing techniques and machine learning models to provide early and accurate classification of skin conditions. The proposed solution uses preprocessing techniques—such as resizing, deblurring, and noise reduction—to prepare skin images for analysis. A pre-trained MobileNetV2 model is employed to classify the images into various disease categories, which are then grouped into normal and abnormal classes to facilitate triage and early intervention.

The detection system is integrated into a user-friendly web interface, where users can upload skin images for diagnosis. After classification, the system displays the identified disease along with specific health guidance, including condition-specific Do's and Don'ts. To improve accessibility and inclusiveness, the website supports language translation (English to Hindi) and features a "Find Nearby Clinics" function that uses Google Maps and the user's geolocation to recommend the top five nearby dermatology clinics with detailed information such as address, ratings, and reviews. By combining deep learning with a practical, real-world application, this project offers an innovative, low-cost solution for skin disease detection. It is especially suited for deployment in remote and underserved regions, where early diagnosis and access to dermatological care can significantly improve patient outcomes and reduce the risk of disease progression..

Keywords: Skin, Pigmentation, Melanocytes, Melanin, UV Radiation, Skin Diseases, Acne, Candidiasis, Cellulitis, Scleroderma, Chickenpox, Ringworm, Eczema, Psoriasis, Image Segmentation, Image Processing, Pre-processing, Deblurring, Noise Reduction, Disease Detection, Melanoma, Early Intervention, Normal vs Abnormal Classification, Patient Outcomes, Dermatological Healthcare

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