Major Project Stage-I Report

On

Skin Lesion Classification for Disease Detection

Submitted in partial fulfillment of the requirements for the award of degree of

BACHELOR OF TECHNOLOGY
in
COMPUTER SCIENCE & ENGINEERING
(Artificial Intelligence & Machine Learning)

by

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BVRIT HYDERABAD COLLEGE OF ENGINEERING FOR WOMEN
(Approved by AICTE, New Delhi and Affiliated to JNTUH, Hyderabad)
Accredited by NBA and NAAC with A Grade
Bachupally, Hyderabad – 500090

2023-24

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CERTIFICATE

This is to certify that the major project stage - 1 entitled "Skin Lesion Classification for Disease Detection" is a bonafide work carried out by **Ms. B. Tanmayee (20WH1A6603), Ms. P. Abheesta(20WH1A6604), Ms. G. Spurthy Vahini (20WH1A6605), Ms. M. Devi Sri Chandana(20WH1A6624), Ms. M. Ashwini(21WH5A6605)** in partial fulfillment for the award of B.Tech degree in **Computer Science & Engineering (AI&ML)** , **BVRIT HYDERABAD College of Engineering for Women, Bachupally, Hyderabad**,affiliated to Jawaharlal Nehru Technological University Hyderabad, Hyderabad under my guidance and supervision. The results embodied in the project work have not been submitted to any other University or Institute for the award of any degree or diploma.

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DECLARATION

We hereby declare that the work presented in this project entitled **"Skin lesion classification for disease detection"** submitted towards completion of Project work in IV Year of B.Tech of CSE(AI&ML) at **BVRIT HYDERABAD College of Engineering for Women,** Hyderabad is an authentic record of our original work carried out under the guidance of **Mr. B. Kishore Kumar, Asst. Prof, Dept of CSE(AI&ML)**

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ABSTRACT

Skin cancer, encompassing various types, presents a diagnostic challenge due to diverse morphological features. Timely identification of skin lesions is crucial for effective medical intervention. Traditional methods, reliant on visual inspection and invasive procedures, may result in delayed or inaccurate diagnoses. This project proposes a solution using deep learning, specifically Convolutional Neural Networks (CNNs), to automate skin lesion classification. Leveraging diverse datasets and transfer learning, the model learns intricate patterns, facilitating accurate disease identification. The objective is to provide a scalable, objective, and accessible tool, potentially reducing dependence on subjective interpretations and enabling early intervention for dermatological conditions.

This project centers on the intricate task of skin cancer classification, employing a fusion of advanced deep learning techniques. The methodology strategically combines conventional machine learning algorithms with cutting-edge deep learning models, specifically focusing on Convolutional Neural Networks (CNNs) like ResNet152,InceptionV3, and MobileNet. A distinctive feature of this approach is the deliberate integration of Class Activation Maps (CAM) into the deep learning models, enhancing the interpretability of classification outcomes. CAM facilitates the visual representation of pivotal regions within input images, providing transparency into the decision-making process.

Beyond achieving competent accuracy in skin cancer classification, the project places significant emphasis on elevating the transparency and reliability of model decisions, especially in practical applications. By prioritizing interpretability through the incorporation of CAM, the project aims to not only improve the effectiveness of skin cancer classification but also instill confidence in the reliability and transparency of the decision-making process. This multi-faceted approach underscores the commitment to advancing the interpretability and practical utility of machine learning models in the domain of skin cancer analysis.

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