A REPORT
ON

INTELLIGENT SKIN DISEASE DETECTION SYSTEM

Submitted by,

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Under the guidance of,

Dr. SRABANA PRAMANIK

in partial fulfillment for the award of the degree of

BACHELOR OF TECHNOLOGY

IN

COMPUTER SCIENCE AND ENGINEERING [DATA SCIENCE]

At

GAIN MORE KNOWLEDGE
REACH GREATER HEIGHTS

PRESIDENCY UNIVERSITY

BENGALURU

MAY 2025

PRESIDENCY UNIVERSITY

PRESIDENCY SCHOOL OF COMPUTER SCIENCE AND ENGINEERING

CERTIFICATE

This is to certify that the Project report **"INTELLIGENT SKIN DISEASE DETECTION SYSTEM"** being submitted by "VENESSA GWENDOLYN, VELURU HITHA, LEENA ZAWAHIR, VIBHA SWAMY, NISARGA BM" bearing roll number(s) "20211CSD0002, 20211CSD0158, 20211CSD0010, 20211CSD0028, 20211CSD0082" in partial fulfillment of the requirement for the award of the degree of Bachelor of Technology in Computer Science and Engineering is a bonafide work carried out under my supervision.

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DECLARATION

We hereby declare that the work, which is being presented in the project report entitled **INTELLIGENT SKIN DISEASE DETECTION SYSTEM** in partial fulfillment for the award of Degree of **Bachelor of Technology** in **Computer Science and Engineering**, is a record of our own investigations carried under the guidance of **Dr. SRABANA PRAMANIK, Assistant Professor (Senior Scale), Presidency School of Computer Science and Engineering, Presidency University, Bengaluru.**

We have not submitted the matter presented in this report anywhere for the award of any other Degree.

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ABSTRACT

Deep learning-based intelligent skin disease diagnosis enhances diagnostic accuracy in overcoming challenges in handling heterogeneous dermatological diseases with similar presentations. A convolutional neural network (CNN)-derived approach is employed for the diagnosis of seven prevalent skin diseases: acne, eczema, psoriasis, melanoma, rosacea, basal cell carcinoma (BCC), and ringworm. Training and testing are performed using the Skin Disease Data dataset for good model performance. Pretrained architectures VGG16, Xception, NASNetMobile, and a hybrid Xception-NASNetMobile model are examined for feature extraction and classification. Experimental results indicate that the ensemble of Xception and NASNetMobile is better than the standalone models, exhibiting better accuracy and enhanced generalization. The ensemble of multiple architectures leverages the strength of deep feature representation, enhancing the classification efficacy in picking up subtle dermatological differences. The proposed method provides a reliable, automated diagnostic tool for dermatological assessment, allowing early diagnosis and improving clinical decision-making. These findings indicate the utility of deep learning in dermatology, allowing the creation of AI-assisted diagnostic tools and providing new directions for telemedicine.

Keywords - Basal Cell Carcinoma (BCC), Skin Disease Detection, Hybrid Model, VGG16, NASNetMobile, Xception, Convolutional Neural Network, Deep Learning