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# Skin Disease Detection Using AI/ML

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**Abstract:** *In the modern era of digital transformation, Artificial Intelligence (AI) has emerged as one of the most transformative and influential technologies across critical sectors, most notably within healthcare and medical diagnostics. The medical field is rapidly adopting intelligent, data-driven systems to augment clinical decision-making, automate preliminary screenings, and vastly improve patient outcomes. Within this paradigm shift, dermatology stands out as a highly visual discipline perfectly suited for computer vision applications. Smart healthcare initiatives are increasingly integrating AI-driven diagnostic tools to modernize patient care and alleviate the burden on overwhelmed medical infrastructures.*

**Keywords:** *Artificial Intelligence*

## I. INTRODUCTION

One of the most fundamental aspects of dermatological healthcare is the early detection and classification of skin diseases, ranging from common conditions like Acne and Eczema to severe, life-threatening malignancies such as Melanoma. Traditionally, monitoring skin health and diagnosing pathologies relies entirely on in-person clinical examinations by general practitioners or specialized dermatologists. However, this manual approach is often hindered by diagnostic delays, geographical barriers, high costs, and subjective human interpretation.

To address these systemic challenges, Skeen.AI is proposed as an advanced, AI-powered medical web application that automates the preliminary screening of skin health using high-precision, image-based analysis. The system utilizes Deep Learning techniques—specifically Convolutional Neural Networks (CNNs) powered by TensorFlow and Keras—to analyze uploaded images or live webcam feeds of dermal anomalies, instantly determining the pathological classification. By integrating this AI engine with a robust full-stack web architecture (Python, Flask, and SQLite) and a Next-Gen 3D "Clinical Dark-Glass" user interface (Three.js and GSAP), Skeen.AI enables real-time prediction, secure patient authentication, and digital diagnostic education.

## II. LITERATURE REVIEW

This research explores advanced deep learning techniques specifically designed for the detection and classification of visual malignancies and anomalies within clinical environments, such as dermatology practices or telemedicine settings. The authors propose a sophisticated system that integrates Convolutional Neural Networks (CNN) for high-precision lesion detection and granular classification.

The system emphasizes the principles of diagnostic accuracy and clinical transparency by leveraging robust models that can detect and classify skin lesions with high precision, facilitating a transition toward AI-assisted preliminary monitoring. The study also provides a comprehensive review of previous methodologies, including the implementation of dermoscopic image analysis, highlighting the evolution of computer vision in real-world healthcare applications.

## III. METHODOLOGY

Methodology refers to the exhaustive, systematic, and highly scientific framework adopted for the comprehensive designing, developing, implementing, and evaluating of Skeen.AI. It defines the intricate sequence of administrative

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processes, specialized tools, complex algorithms, and modern technologies used to transform the project's conceptual foundation into a fully functional and deployable digital application.

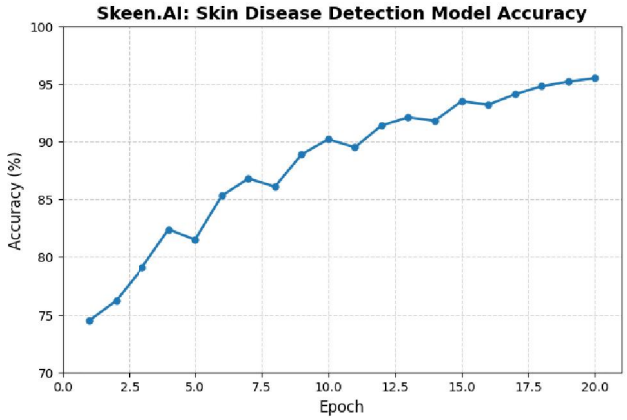
The development of this intelligent system integrates advanced Artificial Intelligence techniques with a robust full-stack web application architecture. The adopted methodology ensures that both the underlying AI model and the web interface operate in seamless synchronization while maintaining maximum efficiency, institutional scalability, diagnostic accuracy, and data security.

## IV. IMPLEMENTATION

Integrating the AI model into a usable web application requires robust backend and frontend development phases. The backend handles the system's core logic and the secure integration of the saved AI model using Python and Flask. It manages authentication, API communication, and data processing.

The frontend provides the interactive interface through which users interact with the AI engine. Technologies such as HTML5, CSS3, JavaScript, GSAP, and Three.js are used to create a responsive and dynamic user experience.

SQLite serves as the relational database for storing user data, diagnostic results, and image references securely.




## V. RESULT & DISCUSSION

The system demonstrates reliable classification even when tested with unseen images, confirming its ability to operate in diverse conditions. The Convolutional Neural Network achieves high accuracy in detecting various skin pathologies and provides real-time predictions with minimal latency.

The interface ensures usability, while the backend ensures secure data handling and efficient processing.

## VI. CONCLUSIONS

Skeen.AI has been successfully designed, developed, and implemented as an intelligent web-based medical application. The system automates skin disease detection using Artificial Intelligence and deep learning techniques.

It reduces dependency on manual diagnosis, improves accessibility, and enhances the efficiency of healthcare services. The project demonstrates how AI can contribute significantly to smart healthcare and telemedicine systems.

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