
ABSTRACT

Smart Derm: A Web-Enabled Dermatology Assistant

Early and accurate diagnosis of skin diseases is crucial for effective treatment and improved patient outcomes. Traditional dermatological diagnosis relies on manual visual examination by specialists, which can be time-consuming and dependent on individual clinical experience. To address these challenges, this project proposes an intelligent skin disease detection and clinical decision support system for dermatology clinics.

The proposed system leverages deep learning-based image analysis to assist dermatologists during clinical evaluation. Dermatological images captured or uploaded by clinicians are analyzed to provide reliable preliminary insights that aid medical decision-making, while preserving the clinician's role in final diagnosis.

The system is implemented as a web-based clinical platform that facilitates patient appointment booking and enables dermatologists to upload and analyze skin images during consultation. Cloud computing is employed for deploying the trained DenseNet model, securely storing diagnostic results, and managing patient records, ensuring scalability, data availability, and efficient clinical workflow integration.

Dataset

- Name: Skin Disease Image Dataset
- Source: Kaggle
- Classes: 10 skin disease categories
- Type: Image Classification Dataset
- Link: <https://www.kaggle.com/datasets/ismailpromus/skin-diseases-image-dataset>

Technology Stack

- Frontend: HTML, CSS, Bootstrap
- Backend: Python, Django
- Deep Learning: CNN, DenseNet-169, PyTorch
- Image Processing: OpenCV, PIL, NumPy
- Cloud Platform: Cloud-based storage and AWS
- Database: SQLite, Cloud Database
- Development Tools: VS Code, Google Colab

References

1. Abedin MJ, Nisha JR, Faruk R, Akter S, Hridi TE, Nishi AR. A Study of Images Based Skin Disease Recognition Using Deep Learning. In 2025 International Conference on Quantum Photonics, Artificial Intelligence, and Networking (QPAIN) 2025 Jul 31 (pp. 1-6). IEEE.
<https://ieeexplore.ieee.org/abstract/document/11172035/>
2. Chowdary ND, Inturu S, Katta J, Yashwanth C, Kanaparthi NS, Voore S. Skin Disease Detection and Recommendation System Using Deep Learning and Cloud Computing. In 2023 8th International Conference on Communication and Electronics Systems (ICCES) 2023 Jun 1 (pp. 1064-1068). IEEE.
<https://ieeexplore.ieee.org/abstract/document/10192759/>
3. Alruwaili M, Mohamed M. An Integrated Deep Learning Model with EfficientNet and ResNet for Accurate Multi-Class Skin Disease Classification. Diagnostics. 2025 Feb 25;15(5):551. <https://doi.org/10.3390/diagnostics15050551>

Submitted By :

Mariyam Biju

MAC24MCA-2037

Faculty Guide:

Prof. Manu John
