

## Identifying the Most Optimum Technology to Detect Pimples and Facial Skin Diseases

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### Abstract

The rising prevalence of facial dermatoses, including acne and their variants, necessitates the development of effective diagnosis and classification techniques. This systematic review evaluates optimal technologies for detecting pimples and classifying facial skin diseases by analysing diverse image processing and machine learning methodologies. The review examines research employing approaches such as Convolutional Neural Networks (CNNs), texture feature extraction, and hybrid strategies that integrate multiple algorithms for detection with high precision. It critically assesses the strengths and limitations of existing technologies in terms of their performance and clinical applicability. Findings highlight significant advancement in automated skin assessment, yet underscore persistent challenges related to dataset diversity, model generalizability, and integration into practical clinical applications. The review emphasizes the necessity of larger, more diverse datasets and the adoption of advanced machine learning techniques to enhance detection performance. Future research directions are proposed to address these gaps, aiming to develop superior tools for dermatologists and patients. These advancements are envisioned to facilitate early diagnosis and treatment of facial skin disorders, ultimately improving patient outcomes.

**Keywords:** *Facial Dermatoses, Acne Detection, Image Processing, Machine Learning, Skin Disease Classification*