

Camera Ready Summary

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2nd International Conference on Artificial Intelligence for Innovations in Healthcare Industries (ICAIHI-2025)

Paper ID

453

Paper Title

A Comprehensive Review on Skin Lesion Analysis and Prognostic Modeling using Deep Learning

Abstract

Skin cancer is among the most prevalent and deadly cancers worldwide. Partially, it can be prevented with early diagnosis. Conventional diagnosis by visual examination and dermoscopy is frequently arbitrary, necessitates specialized knowledge, and runs the risk of being incorrectly or slowly classified. Developments in artificial intelligence (AI) and computational imaging have made automated techniques possible, greatly increasing accuracy and efficiency. This review summarizes the body of knowledge regarding skin lesion analysis, including cutting-edge deep learning techniques, classical machine learning, and conventional image processing. Important issues are analyzed critically, such as image segmentation, dataset imbalance, and interpretability issues. We suggest a conceptual framework that combines conditional diffusion modeling, lesion segmentation, and uncertainty quantification to forecast the evolution of lesions over time in order to overcome these drawbacks. This paper outlines future directions for developing trustworthy and interpretable AI systems for skin cancer diagnosis while highlighting the advantages and disadvantages of current approaches by fusing a systematic review with a forward looking model.

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Camera Ready Questions Response

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4. Paper Submission Agreement 1

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