

# Convolutional Neural Network for Skin Cancer Risk Assessment through Skin Lesion Analysis

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## Abstract

Mobile technology and artificial intelligence are opening new avenues for improving public health, particularly in the field of dermatology. This work presents the concept of a mobile application designed to assist in detecting potentially cancerous moles, with the aim of promoting early detection of skin cancer and reducing the burden on healthcare systems. Skin cancer is a growing public health issue worldwide, and in Romania, despite a relatively low incidence of melanoma, there are some of the highest mortality rates associated with this disease. This paradox highlights the need for effective methods for early diagnosis and rapid intervention. The proposed research investigation uses a Convolutional Neural Network (CNN) to classify images of moles based on their risk for skin cancer. Users can capture a photograph of the suspect mole, which the application then processes using a specialized CNN model. The model is trained with labeled datasets by expert dermatologists, using the HAM10000 dataset, which contains over 10,000 dermoscopic images of pigmented lesions. The application provides a preliminary classification into seven categories, indicating whether the mole is benign or malignant, with a target accuracy of at least 93%, aligning with other similar studies. This initiative can promote awareness and early detection of skin cancer, offering a preliminary screening tool that is easy for the use of general public.

**Keywords:** Convolutional Neural Network; Public health; Skin cancer

