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## View Abstract

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**CONTROL ID:** 3176184

**TITLE:** Scoring of the clinical images for malignant degree of skin cancer using deep learning

**AUTHORS (FIRST NAME, LAST NAME):** Bin Xie<sup>2</sup>, Xinyu Zhao<sup>2</sup>, Minxue Shen<sup>1</sup>, Juan Su<sup>1</sup>

**INSTITUTIONS (ALL):** 1. Xiangya Hospital, Central South University, Changsha, China.

2. School of Information Science and Engineering, Central South University, Changsha, China.

**ABSTRACT BODY:**

**Abstract Body:** Skin cancer is the most common type of cancer. The main types of skin cancer are nevus, basal cell carcinoma(BCC), squamous cell carcinoma(SCC), and malignant melanoma (MM) et al. According to the diagnostic criteria, skin cancer can be divided into benign, low degree and high degree malignancy. In current clinical practice, diagnosis of benign and malignant tumors often needs biopsy and pathological examination. Many patients are unable to get inexpensive access to accurate diagnosis, which might cause delays in the optimal treatment. In order to aid primary doctors to predict the malignant degree of the skin cancer more conveniently and conduct the preliminary screening before diagnosis, we attempted the automatic scoring of malignant degree by clinical skin cancer images using deep learning models. Xiangya Hospital accumulated pathologically verified and annotated dataset for 9 years (from 2010 to 2018). 10 kinds of skin cancer diseases, including 4,500 images, were selected and divided into three levels: Junctional nevus, Intradermal nevus, Dermatofibroma, Lipoma and Seborrheic keratosis is benign, BCC, Bowen's disease and Solar keratosis is low degree of malignancy, SCC and MM is high degree of malignancy. We used the Xception architecture to classify the three degrees, and the over-all accuracy could reach 82.7%. The area under the receiver operating curve (ROC) values corresponding to the three degrees could reach 0.959, 0.919 and 0.947 respectively. Our scoring algorithm was compared with 10 professional dermatologists, and the results showed that the performance of computer assessment was highly consistent with those of the professional dermatologists.

**KEYWORDS:** Cancer Biology, Clinical Research, Imaging.

**CURRENT PREFERRED CATEGORY:** Interventional Studies, Clinical and Patient Reported Outcomes | Skin, Appendages, and Stem Cell Biology

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