

Dermatoscopic image classification using the neural network model

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Abstract. *Skin cancer is one of the most commonly diagnosed malignancies, and malignant melanoma (MM) is one of the most dangerous types of skin cancer. One of the promising optical methods for diagnosing skin diseases is dermatoscopy. The paper concentrates on the classification of dermatoscopic images of skin neoplasms. The main purpose is to distinguish malignant melanoma tumors among other skin diseases using neural networks. The architecture of the convolutional neural network Inception-V3 was used. The Inception-V3 model was released in 2015, it has a total of 42 layers and a lower error rate than its predecessors. For training, a set of dematoscopic images was used, divided into two classes: malignant melanoma and non-melanoma (other tumors). We used two datasets of dermatoscopic images. The first dataset is the HAM10k images dataset. The images of the second dataset were obtained using a dermatoscopic tool prototype. Actual diagnosis was validated by histopathology. All images were pre-processed by color correction. The results of training the neural network show that it was possible to achieve a classification accuracy higher than the accuracy of diagnosis by an oncologist. The findings suggest that this approach can be used in medical diagnostics to detect malignant melanoma tumors.*