

Response to Reviewer 1 Comments

Point 1: The novelty and innovativeness of the paper must be outlined. The paper uses well-known deep learning models (DenseNet, InceptionNet, ResNet, NasNet, and MobileNet), which have been used several times before by different authors, including for the skin disease recognition tasks. The research paper should go beyond the application of known methods, which is a standard engineering task. The proposed methodology is traditional.

Response 1: We agree with your comment. The novelty and innovationess of the paper is:

- **Applying the Soft-Attention to extract to heat map feature representing unsupervisedly the main part of the lesion.**
- **Using metadata including age, gender, and localization as an feature**
- **Using a new weight loss to figure out the imbalanced problem of the data set**

Point 2: The related works subsection is poorly organized and presented. The selection of works seems to be ad hoc. I suggest to add some structural organization (e.g., machine learning based, deep learning based methods) and discuss the state-of-the-art papers published in the previous 2-3 years, which better reflect the trends and achievements in this rapidly evolving research field. The authors are encouraged to discuss, for example, Malignant skin melanoma detection using image augmentation by oversampling in nonlinear lower-dimensional embedding manifold. Extraction of abnormal skin lesion from dermoscopy image using VGG-SegNet. Melanoma segmentation: A framework of improved DenseNet77 and UNET convolutional neural network. Finalize by discussing the limitations of existing methods as a motivation of your study.

Response 2: The related work has already been reorganized

Point 3: Provide specific values of image augmentation parameters for replicability.

Response 3: We have already added the parameters used in image data augmentation

Point 4: Explain how you set the hyperparameter values for training such as training epochs and batch size. Did you use any hyperparameter optimisation/finetuning?

Response 4:

Point 5: More experimental results should be added such as confusion matrices and ROC plots.

Response 5: We have already added the confusion matrix and ROC plots

Point 6: Evaluate the computational complexity of the proposed methodology. Report on the total number of trainable parameters in the proposed model.

Response 6: We have already added the trainable parameters of the proposed method as well as the computational complexity

Point 7: Compare your results with the results of other studies using the same datasets.

Response 7: We have already made a comparison between our approach with other studies using the same data set

Point 8: Add the discussion section and discuss the limitations of the proposed methodology.

Response 8: We have already dicussed the limitation in distinguish the melanoma and the nevus in the last part of section 3. Results → 3.2 Discussion Table 6

Point 9: The conclusions section just summarizes all findings of this study. What are the deeper implications of this study and its significance to the biomedical research field? Support your claims by the main numerical findings from this study.

Response 9:

Point 10: Extend Table 1 by reporting more specific information about the discussed studies such as deep learning models used and accuracy (performance) achieved.

Response 10:

Point 11: The caption of Table 6 is confusing.

Response 11: We have already change the caption of Table 6 for more understandable

Point 12: Why there are missing values in Table 7?

Response 12: We are continuing to provide the training result of other model