

Understanding the Web Interface of Hypothesis-Driven Decision-Aid

This tutorial will guide you through the key components of the interface.

- 1. **Image index:** The index of the current image, valued from 0 to 8;
- 2. **Dermatoscopic image:** The dermatoscopic image that we are evaluating;
- 3. **Your hypothesis:** Select one out of seven possible diagnoses for the current image. When you select a hypothesis, the evidence will be shown correspondingly. You do not need to view all hypotheses;
- 4. **Evidence for:** The evidence that support the selected hypothesis;
- 5. **Evidence against:** The evidence that refute the selected hypothesis;
- 6. **Response: Assigning the likelihood:** Use the seven sliders to answer the task's question. You will need to assign the likelihood for seven possible diagnoses and ensure that the total likelihood is 100.

How to Read the Evidence

The evidence comprise of two components, including (A) weight of evidence (on the left side) and (B) image segmentations (on the right side), explained as follows.

- **(A) weight of evidence:** We have the weight of evidence (WoE) for each feature being presented as horizontal bar charts. A positive weight of evidence (blue colour) indicates that the feature's value supports the selected hypothesis according to the AI model used in the decision-aid. A negative weight of evidence (red colour) indicates that the feature's value refutes the selected hypothesis according to the AI model used in the decision-aid. The weight of evidence is also measured as how much each feature contributes to the hypothesis based on the horizontal axis. Note that this decision-aid can sometimes find wrong evidence or give it the wrong weight.
- **(B) image evidence:** Each feature is represented as evidence on the test image that highlight areas on the skin. We also provide five other example images in the training set with evidence that present the similar feature. Based on these evidence, you can identify the dermatoscopic feature being represented.

EvaSkin - Practice Task - Hypothesis-Driven

We will give you an example of the task. Please use the information provided to you and assign the likelihood for the seven possible diagnoses.

Image Index0

Dermatoscopic image

Your hypothesis

Please select a maximum of two hypotheses at the same time

☒ Actinic keratoses/intraepithelial carcinoma (AKIEC)

☐ Basal cell carcinoma (BCC)

☐ Benign keratosis-like lesions (BKL)

☐ Dermatofibroma (DF)

☐ Melanoma (MEL)

☐ Melanocytic nevi (NV)

☐ Vascular lesions (VASC)

Evidence For AKIEC

Vascular Structures

Irregular Pigmentation

Irregular Dots and Globules

Whitish Veils

Dark Irregular Pigmentation

Lines

02

Test image

Train images

Evidence Against AKIEC

Irregular Pigmentation

-3-2-10

Test image

Train images

Assign the likelihood for each option, where 100 is the most likely, 0 is the least likely. Please total the choices to 100.

Current total likelihood: 0

Actinic keratoses/intraepithelial carcinoma (AKIEC)

0

Basal cell carcinoma (BCC)

0

Benign keratosis-like lesions (BKL)

0

Dermatofibroma (DF)

0

Melanoma (MEL)

0

Melanocytic nevi (NV)

0

Vascular lesions (VASC)

0

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I understand

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