

Application Manual: For Use in CS6460

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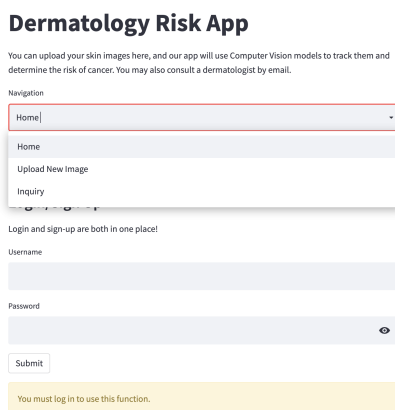
Abstract—This document is the manual of our application, which includes the instructions to utilize the application and explore all the features.

1 OVERVIEW

Our application is deployed with Heroku and you can access the application via the link: <https://cs6440-dermatology-risk.herokuapp.com/>. With our application, patients can upload a skin image and get a score that indicates the probability of getting skin cancer. A higher score represents that the user has a higher risk of getting cancer. The user can create an account and our application will store the previous images he uploads. Also, he can use our system to submit an inquiry of sending an email to a specific dermatologist. We will introduce each feature in the following sections.

2 LOGIN

There are three functions below the navigation bar: Home, Upload new images, and inquiry. To create an account and log into our application, the user need to provide a pair of username and password.



The screenshot shows the 'Dermatology Risk App' interface. At the top, a navigation bar contains three items: 'Home', 'Upload New Image', and 'Inquiry'. Below the navigation bar, there is a login section with the text 'Login and sign-up are both in one place!'. It includes a 'Username' input field, a 'Password' input field with a toggle icon, and a 'Submit' button. A yellow message box at the bottom states 'You must log in to use this function.'

Figure 1— Navigation Bar and the UI of login function

After creating a new account, the user is asked to provide the date of birth and sex to create a profile. This information is not required to make the model work, but it would be useful when creating an inquiry to contact a dermatologist.

The screenshot shows a web interface for a profile page. At the top, there is a 'Navigation' bar with a 'Home' button. Below this, the heading 'Home' is displayed. A light blue notification box states 'You logged in as testname.' with a 'Logout' button. The 'Profile' section follows, with a message 'You can modify the fields below. Don't forget to submit the changes.' Below this, the 'Date of Birth' field is set to '2022/04/23'. The 'Sex' section has three radio buttons: 'N/A' (selected), 'Male', and 'Female'. A 'Submit Change' button is at the bottom.

Figure 2— Profile Page

3 UPLOAD NEW IMAGE

The user can choose the “upload new image” function to upload an image to diagnose. The image should be less than 200 MB and we support the image with PNG, JPG, and JPEG formats. The user could choose the date when the image is taken and also add descriptions related to the skin problems. All the images this user uploads will be stored in the database. After clicking submit, the website will show a notification that says “Success! Your image has been uploaded. Model result will show up in a few seconds,” if the image is uploaded successfully. The user can go back to the home page to check the results after waiting for a few seconds. The home page will display the most recent image and match overview, which includes the predicted risk score and the risk of developing skin cancer.

Upload New Image

Upload Images

Drag and drop file here
Limit 200MB per file • PNG, JPG, JPEG

Browse files

example.jpeg 81.6KB




Image taken on:

2022/04/23

Description

Any special note?

Submit

Figure 3— Upload new image to run a diagnosis.

Match Overview

Model's Predicted Risk Score: 67. Your risk of developing skin cancer is moderate.

You may upload a new image through "Upload New Image" option in the Navigation above. You may use our "Inquiry" system to request manual doctoral review.

Figure 4— Match Overview and results

4 INQUIRY

If the user wants to contact a dermatologist to further diagnose his skin issue, he can choose the inquiry function. When creating the inquiry, our application won't share the user's profile information, including sex and age, with the dermatologist. It will send the images of the skin the user uploaded previously and the model prediction score to the dermatologist. When creating the inquiry, the user should provide the name and email address of the dermatologist. Also, the user can also provide additional notes to the doctor to help the doctor

diagnose conveniently. After clicking the “send email” button, the user can send the email to the corresponding dermatologist.

Inquiry

Dermatology Risk App does not store your communication with doctors due to private concern, nor will it share your profile information (age, sex) provided to the site. Only the image taken, its date, and the model's score will be automatically included. You can switch to use another image at the "Home" page.

Dermatologist Information

First Name

Last Name

Email Address

Message

Description

Any note to doctor?



Send Email

Figure 5— Inquiry page