**Introduction**

This project is an Android application to assist in the detection of melanoma. It allows dermatologists to take photos of and keep track of their patients. This can be useful for tracking the development of melanomas over time, or for conducting case studies on large amounts of patient data. Each dermatologist can have lists of patients, of which they can collect and store some basic health data. All images of a patient can be uploaded to Firebase Storage, which can be accessed from our web portal. From the web portal the dermatologist can view the photos they have taken, and an image processing algorithm can be applied to assist in detection. Ideally the images will be taken in RAW format for better image processing results.

**Technologies Used**

Android Studio 3.0 for general app development

Camera2 API for RAW format images

Google login service for authentication

Firebase Storage for an online image repository

Firebase Realtime Database to store the downloadURLs of each image in Firebase Storage for easier image viewing

**Upcoming Features**

Mole tracker: The ability to easily track moles over time. This includes the option to tag each mole with an identifier, which will then be used to sort the gallery by. Upon taking a photo the user can select which mole the photo belongs to.

Search for patient: The ability to search your list of all patients for a specific patient. Only display matching results and return to showing all patients when search query is cleared.

Add patient photo: The option to add a photo to help identify the patient. This will open up the camera itself so that the user can take a photo, and will not open the device’s photo gallery like the user profile photo does.

**Building using Android Studio**

Download software into Android Studio Projects folder.

Open Android Studio and select *Open an existing Android Studio project.*

Select the Melanoma directory.

An Android Virtual Device or physical device can be used to run the application. The device must be capable of capturing RAW photos for the full implementation. For a physical device, connect the device to the computer and make sure that the settings for developer options and USB debugging are enabled.

**Known Issues**

Camera Flash: When an image is taken in low-light conditions and the camera flashes, the exposure is not properly captured, resulting in dark or discolored images.

Checkboxes off-screen: When the “Select” option is pressed in the gallery view, checkboxes will appear for the photos currently on the screen, but scrolling reveals they are not all displayed.

**Maintainers**

This project is maintained by:

[Nick Sandstrom](https://github.com/nick4810/)