BURN SEGMENTATION: Mobile Application For Calculating The Percentage Of Total Burn Area

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Abstract

Previous treatments that have been set in place for burn treatment haven't been the most effective. They do come with a lot of errors and as not as time-efficient. In collaboration with Loyola College of Medicine, we have created an application that tackles these issues, with our application, pictures of burn patients will be taken, healthy skin and burn segmentation will be performed, and then an accurate percentage of the burn area will be calculated. This application would make burn area estimation, skin graft planning, and burn treatment process more accurate and efficient.

MOTIVATION

- Creating quicker and more efficient burn treatment methods
- Advancement in burn treatment techniques

FUTURE PLANS

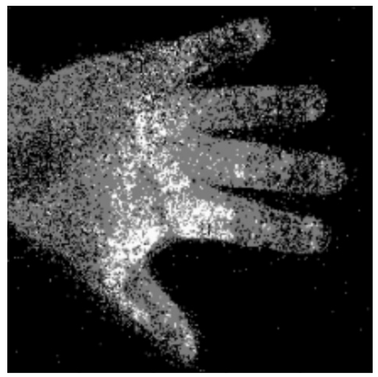
- Have the application used clinically to assist in burn treatment
- Publish the app on the app/play store
- Improve model accuracy

WORKING PRINCIPLE/RESULT

- The user will use an image previously taken image.
- The user will select the file in application.
- The image will be converted to HSI, processed pixel by pixel with a sklearn model to identify the segments.
- The segments masks will be returned.

Figure 1:Before segmentation

Figure 2:After Segmentation



In the images above, the model has been able to identify with an 80% accuracy which pixels are background, healthy skin, or burn

TOOLS USED

GitHub, Android Studio, PyCharm, scikit learn, jupyter

UI INTERFACE