

Past Goals

We wanted to finish adding functionality to our application since our last progress update so that we could begin clinical validation. So far, our application is functional, it just cannot store large amounts of data within the application. However, we have found that this issue is not a barrier at this point because we do not have a secure server set up to maintain the data in a confidential format. We have also fully developed the process for clinical validation that we plan to use before design day.

Progress

We have integrated all necessary aspects of our application into a single application format. This means that the application interfaces with an android camera, includes neural network functionality for image classification, and includes some fluid recommendations. We have decided to focus on optimizing the TBSA and burn degree outputs of the application at this point so that we can move into resuscitation and transfer optimization with continued support of this project.

Our team has successfully classified over 275000 images for training. We are currently working on introducing all of these images into the neural network to continue to improve classification accuracy. Our next steps would be to train on 25 epochs of all 270000+ images within the network.

Our team also began collecting data within the clinic this week. We are working with medical personnel to capture information related to how these individuals go about classifying and quantifying TBSA. So far we have been able to collect data from 4 different physicians on 6 different images. Our approach to this involves having the physicians outline the burn areas on images the way that they would normally diagnose in the clinic. We run the same images through the neural network to capture the output that the neural net image classifier. Once we have both results, we compare the masks that are formed using both approaches. We then plan to analyze similarity between these two approaches to quantify differences between physicians and how physician performance compares to our application output.

Future goals

Continuing forward with our progress, we hope to add more functionality to our application so that users can be authenticated, data can be securely stored, and our application accuracy can continue to improve. We hope to continue to validate our current application performance, take in suggestions for improvement, and continue to improve overall performance of our solution. We plan to continue moving forward with our application development by applying to the DEBUT application, in addition to several VUMC grants so that we can have our team continue with this endeavor.