

Past Goals

We have continued to improve and update our neural network through the additional training with more images; 25 epochs with an 85% accuracy. Additionally, we have successfully integrated the neural network into the front end design of our application that we will be able to present as a working prototype during design day and also move forward with validation. The application successfully captures photos with the mobile camera and runs it through the neural network to classify the image. In order to determine the validity of our solution we have put together a form to collect data to assess the impact this application has on the current standard of care. We have begun drafting the background, methods, and other introductory parts of our design poster.

Progress

Since our last presentation, we have continued to work on full deployment of our application. This has included getting the neural net .pb file to fully function on the application. We have also been able to connect the camera function so that images can be directly added into the neural network for analysis. Before, the neural net analysis would take 2-5 minutes when analyzing each photo. After some optimization, we have been able to lower this time to about 5 seconds for analysis of the photos, which has greatly improved the speed of the solution. In terms of the neural network, we have continued to train for improved accuracy. So far, we have completed 25 epochs of training, and our accuracy is currently at 85%

Additionally, we have begun the process of deciding the statistics and process that we want to use in order to validate our application. After speaking with Dr. Byram, we believe that it will be important to determine the similarity metric between the masks created by both the physicians and neural network. By doing so, we can determine how similar our application's output is to that of the gold standard, and we can quantify the differences between the two. We also hope to use an excel spreadsheet to ask the end users about their experience using the application to qualitatively determine the effect this application has on the current system of care, and look for potential areas which we could improve upon. We hope to have a working model before design day so that we can begin the data collection and validation process of the application before this date.

Future goals

Our tentative application completion date for the application deployment is April 8th. After that, we can begin to collect clinic data and validate the application, neural net, and algorithms we have created. We will hand off the phone with the application to Dr. Kumar as well as the validation survey we have created. The personnel in the burn ICU will use our application and record their recommendations and the application recommendations for several patients over several hours. After gathering information, we will be able to quantify the difference between our application recommendations and medical personnel recommendations. Meanwhile, we are also working on creating our poster including the layout, which figures to include, and the actual written portions of the poster.