

Time Log From 3/25/2024-3/31/2024
13.5 Hours

Date	Duration	Type	Description of completed work	Challenges and/or next steps
3/26	2 hours	coding/debugging	I compiled the model and tried to pass an MRI into the model as a test to see how the model behaves. My preprocessing steps were no good as I kept running into runtime errors.	Review preprocessing and adjust the model if needed
3/27	3 hours	Research/coding	I found that I mixed up some variables in my script which was causing data to load in an order that I did not intend. After fixing that I decided to try and train the model. However, after training it for an hour and then training it again, I noticed that my loss function was not changing. This indicates that there's fundamentally wrong with how I preprocessed the data and/or made the model	Review preprocessing and review the model architecture.
3/28	3 hours	Research/coding/debugging	After reviewing my data, I found that the normalized values for my image data may be causing the model to process the images incorrectly. After researching, I found that normalizing dcm images isn't as simple as just normalizing png images. There's some math behind it that I had to read up on	Try training the model
3/29	3 hours	coding/debugging	I'm not sure what is happening with my model. When I try to run cells, I run into error after error I tried using another person's model architecture (which implements UNet for segmenting car images) and got more useful results than mine. Though, all that tells me is that my preprocessing is fine. I need to work on understanding UNet better and why the architecture I have isn't working	debug/fix the model architecture
3/30	2 hours	debugging	I Spent most of the day just trying to trace the model's architecture and investigate what's happening when an image tries to pass through the model	Check-in with Professor McNeil and see if he can suggest anything
3/31	0.5 hours	Deliverable	Prepared the Deliverable	

This Week's Reflection

Making the model has been one of the most frustrating things in my life. Initially, I thought the making of the model would be much simpler, however, I kept running into issues when trying to pass my image data into the model. At first, it was because the images weren't being loaded in properly due to array shape mismatches. Then I realized I swapped my mask and image variables, causing the data loader to return images instead of masks, and masks instead of images.

Then after finally fixing the preprocessing, I managed to train my model. However, during training, I noticed that my loss function was not changing, so I started printing out the prediction arrays that my model made and saw that there was something else wrong with how the data was being preprocessed. That being that the images have extremely strange values and need to be scaled. However, scaling the data is another issue, because there is no official standard way to do so. However, I did find a solution after some research where means and standard deviations are used to scale the data. Now, I need to revisit the model architecture and address why it is not working