

Reflections

Overall, our team was able to meet its base and target goals by getting the basic model to run and produce plausible results at the 500th and 1000th epoch. For example, at the 500th epoch we can observe that our model was successfully able to segment the sky from the grass and realistically colorize them. However, we were unable to run trials to evaluate the model using the colorization Turing test and it is likely that the desaturated images would not pass 10% of the trials due to the neutral, brownish tones of the images produced by the model. We were also unable to successfully implement class rebalancing and multinomial cross entropy loss outlined in the paper. Therefore, we were unable to meet our stretch goals for the basic model.

In terms of our advanced model it would likely perform much better when evaluated by visual judgment or the Turing test as the colors of the output images are very realistic. If there had been more time and our bugs had been dealt with sooner, our team would have liked to include the results on Deep Learning Day. Nevertheless, we were able to get our model to run successfully and return plausible results so we met our stretch goals in that regard.

We pivoted from using the original dataset to one that was smaller albeit less suited for our purposes. For our loss function, we used Mean Squared Error as a placeholder for the loss function described in the paper. If we had more time, switching out the dataset to one that was more standardized would definitely improve the performance of the model. As suggested by our TA, one option could be training the model on different images of landscapes as opposed to totally random and unrelated images.

Lastly, successfully implementing the multinomial cross entropy function with reweighting would avoid images collapsing towards neutral colors and make our basic model more accurate. One of the major takeaways of the project was the importance of choosing a standardized dataset that is suitable for the purposes of training.