15-400 Milestone 6
Spring 2019

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1 Milestone Summary

This milestone we have tested HPNet, trained with the KITTI dataset. We have done tests using the KITTI dataset, rotating propeller, and finally the rotating snake illusion. The prediction of the illusion itself was somewhat successful although we currently have some additional avenues to explore as well as some improvements

2 Current Progress

For this milestone, we have gotten HPNet working. I have been able to produce image predictions with the model under the trained KITTI dataset. We have been able to verify its ability to produce predictions by utilizing the KITTI test set and asking the network to generate predictions. The predictions have approximately the same as with the training dataset and the images on inspection look approximately correct. Interestingly enough the network was also able to predict rotation of a propeller, where rotation isn't too apparent within the KITTI dataset, since the images are composed of cars driving. With this, we decided to also test the model on the snake illusion. However unlike the degree of rotation viewed with PredNet, we see slight motion in the first couple prediction from HPNet, but the reset of the video goes static. The rotation viewed by HPNet however is in the correct direction implying that it is not mere random error generated by the network.

3 Changes and conclusion

At the moment, we have a couple final directions we want to explore. In particular, the model is current set at taking in one frame, and predicting one frame. However, the network architecture should be able to handle a block to block scheme, where a series of images are inputted, and a series are outputted. One current issue that I am currently facing however, is I have a couple questions relating the actual implementation of the network to its paper's algorithm. I've also noticed a potential flaw when looking at the range of the hard tanh function that I have also brought up to the lab member who wrote the paper. I have not yet heard back, but should be soon.