# Technical Setup

# Unusual Objects on the Road

Team (Group 32) name: Teaching AutoPilot to Dodge

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Tanner Fry

**Abstract**

In this document I discuss some of the steps taken to setup the environment and some problems.

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# 1 Problems Encountered and Solutions

## 1.1 Algorithms Running Environment Setup

The first step always be the toughest one. Due to some permissions problems with the Steed server we had issues updating and downloading the required libraries for the algorithms. We had a meeting with Jialin, a PHD student of our client, and she provided us a lot of information and techniques. With more helps from Jialin and Googling, we finally figure it out by correcting an issue in our add path line via our bashrc file.

## 1.2 Unexpected Test Results

The expected object recognition results from the FCN algorithm should be trees, cars, roads, and people. Unusual objects should be recognized as different color, but the results we got(as you will see in the demo) are mostly gray scale. After the meeting with our client, he suggested to apply a different learning module to the algorithm to make it clever enough before test our data. On the other hand, we also got another suggestion to change the resolution to see more objects in the output images. We tried both solution to make it work, but we still have not got what we want. However they results are correct based on the inputs we are giving it, so it comes down to doing analytical work.

## 1.3 Video Feed Issues

I personally spent a lot of time pulling the frames out of our dataset videos. First Jacky went through all of the videos and organized them by type. I then started to go through each video and pull the frames out individually. However I ran into a problem that each video would reset the frame count and start to overwrite the previous videos images. With hundreds of videos it would not have been reasonable to walk through each and change the name to avoid overwriting the frame count. We ended up using the Steed server to put the videos into a single video feed for each dataset type. It took a while to upload and download hours of video footage and hundreds of images, but it was much smoother than the alternative. I also ran into a small issue with VLC not being able to read .MOV format videos (which is the iMovie OSX format) but I was able to work around that by downloading Quicktime.

# 2 Technical Retrospective

As for the technical side of things I think we did well at handling changes as the came. For instance adjusting from using a Linux box to using the Steed server. But it felt like we did not do enough technical research on the front end. We really should have figured out that the Steed server was the best option much further in advance (arguably at the end of Fall term). Also, while Jialin was extremely helpful in getting our algorithms up and running, we really should have just setup a more formal meeting with our client or one of the knowledgeable technical staff available to us. Having Basil miss our initial meeting with Jialin made life much harder on him to stay up to speed.

## References

## References

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