Journal Report 15

1/13/20-1/16/20

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Period 4, White

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**Daily Logs**

**Monday, January 13:**

I read possible causes of my “Average IOU: - nan” error. I knew this message was often associated with incorrect image annotations, but today I found out that it is usually caused only by the more specific mistake of leaving one of the annotation files blank, which I did not do. I had been looking for a mistake in the calculations for the values in my annotation files, but now I know this is generally not the cause of the “Average IOU: - nan” messages.

**Tuesday, January 14:**

In an Issue discussion on GitHub, I read that, although I do not want to have “Average IOU: - nan” messages, they are expected in early iterations of the training. This message is generally considered a problem only when every line of training shows this message (which my code doesn’t do), or if this message persists after approximately 1,000 iterations. Today I started running my training program to higher iterations to see whether the “Average IOU: -nan” message would go away on its own as expected. However, above 100 iterations, the program stops identifying the handicap parking placard at all, and before 100 iterations it identifies it in some inaccurate locations.

**Thursday, January 16:**

Today, I adjusted the threshold for my training program to see the different accuracy levels at which it could identify handicap parking placards for different numbers of iterations. Higher threshold values were only possible with the weights calculated with a lower number of iterations. I think my training program is potentially overfitting the weights at a low number of iterations because I only have approximately 50 photos, while the tutorial I am following has at least 1,000. Since I use the same batch size as the tutorial, I can go through my entire training set with each iteration, while the person who made the tutorial would only get through approximately 5% of their training images. I think I have to get to a higher number of iterations to stop getting the “Average IOU: - nan” message, which is contradictory to the smaller number of iterations I need to prevent overfitting. Therefore, I am now trying to increase the size of my training set.

**Timeline:**

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| --- | --- | --- |
| Week | Goal | Met? |
| 1/6 - 1/9 | Correct “can’t open file” error | Yes |
| 1/13 - 1/16 | Correct “Average IOU: - nan” messages, which will likely greatly improve the program accuracy level | No |
| 1/21 - 1/23 | Add more annotated photos to training set to prevent both overfitting and “Average IOU: - nan” messages | No |
| 1/29 - 1/31 | Resolve remaining errors with training program | No |

**Reflection:**

This week, I determined that the “Average IOU: - nan” message I have been working to resolve is an expected error and generally resolves itself at high levels of iterations. However, when I tried using more iterations to train my program, it stopped identifying handicap parking placards at any accuracy level, which I believe is a result of overfitting because I have a small training set. Therefore, next week I will try to increase the size of my training set to see if that makes a difference. Hopefully, this will allow me to get to a higher number of iterations without overfitting, at which time the “Average IOU: - nan” message will go away.