

Project 3: Semantic Segmentation

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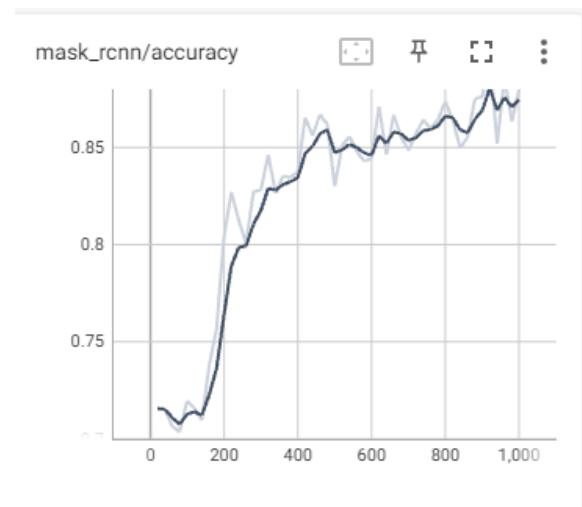
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Late Day use: 3

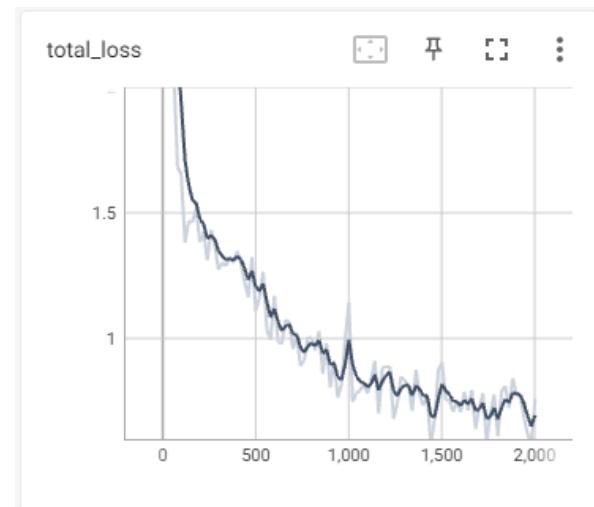
Part 1:

I implemented three approaches to load the data and realized using the cv2 and preloading the data into variables as in the tutorial would increase the time efficiency. I trained the model with a base learning rate of 0.00025 and a max iteration of 2000.

Accuracy



Total loss



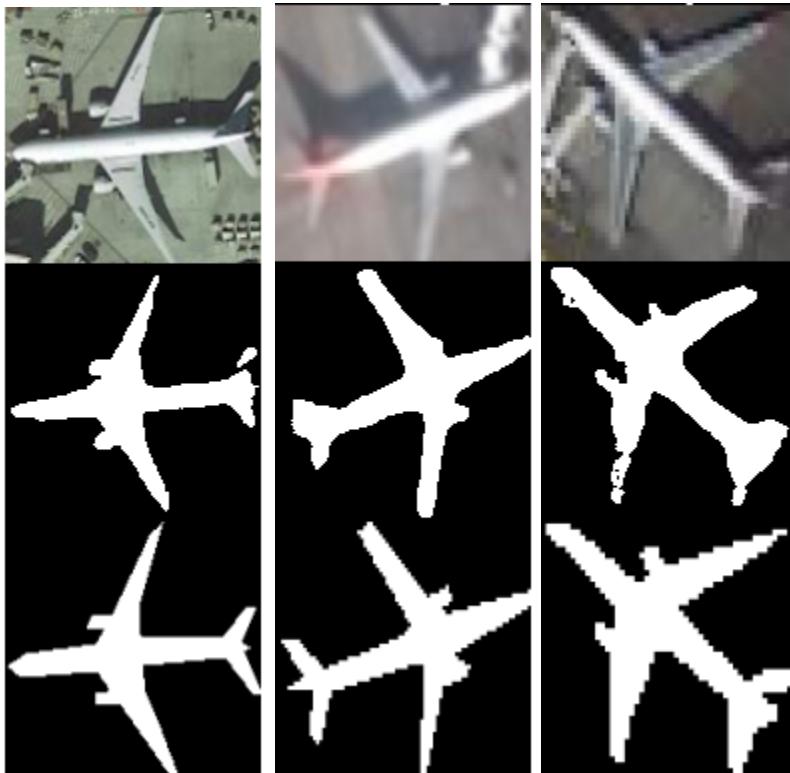
Visualization



Defaulted loss function, reach the loss of 0.12.

Mean IoU: 0.8056319833649547

Visualization of actual image, ground truth mask, and predicted mask



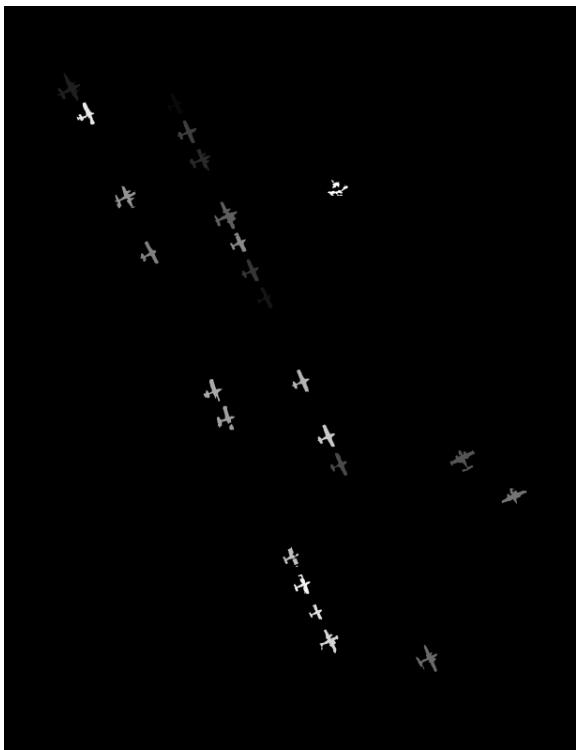
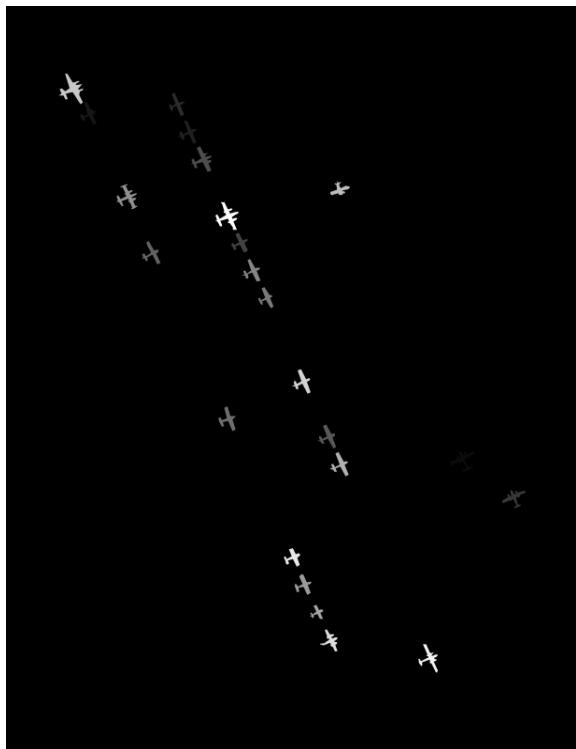
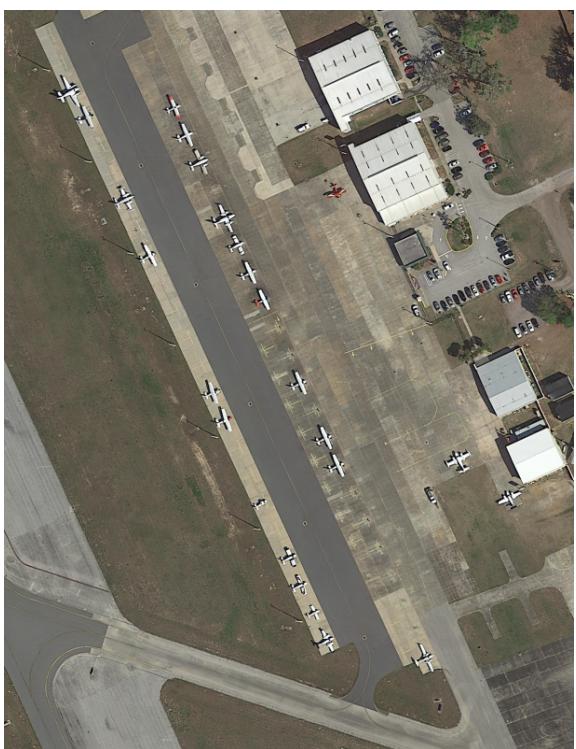
Part 3:

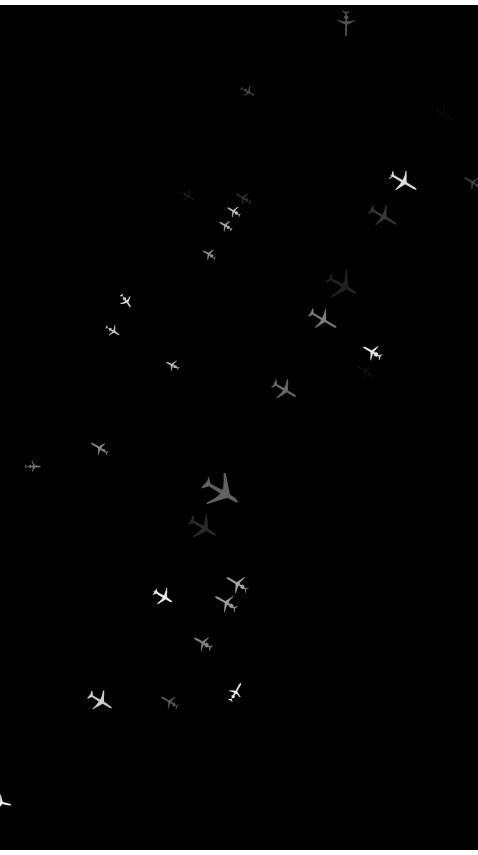
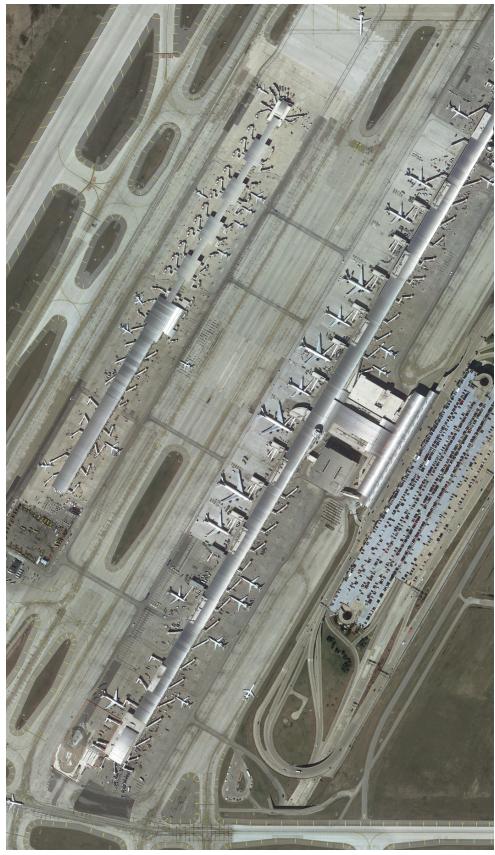
Name on Kaggle: mhl3232

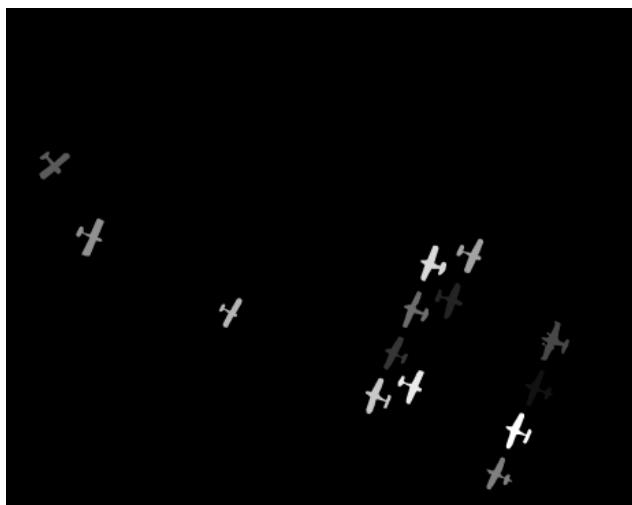
Best score: 0.3172

The accuracy in part1 and IoU in part 2 are high, and even the visualization in part3 looks good. However, the prediction score works severely, probably the mask resizing matter and the overfitting issue. I spent the whole week before the due date plus 3 late days trying to fix this but was unable to improve it unfortunately, therefore I decided to stay with this score.

Visualization of actual image, ground truth mask, and predicted mask







Part 4:

Visualization:

Compared with part 1, part 1 performs better as there is some failure detection in this model.

