

Can you detect my aircraft?



Leo Liu, MS

Motivation



- Enhance aviation safety
- Improve ground traffic efficiency

Workflow



GitHub

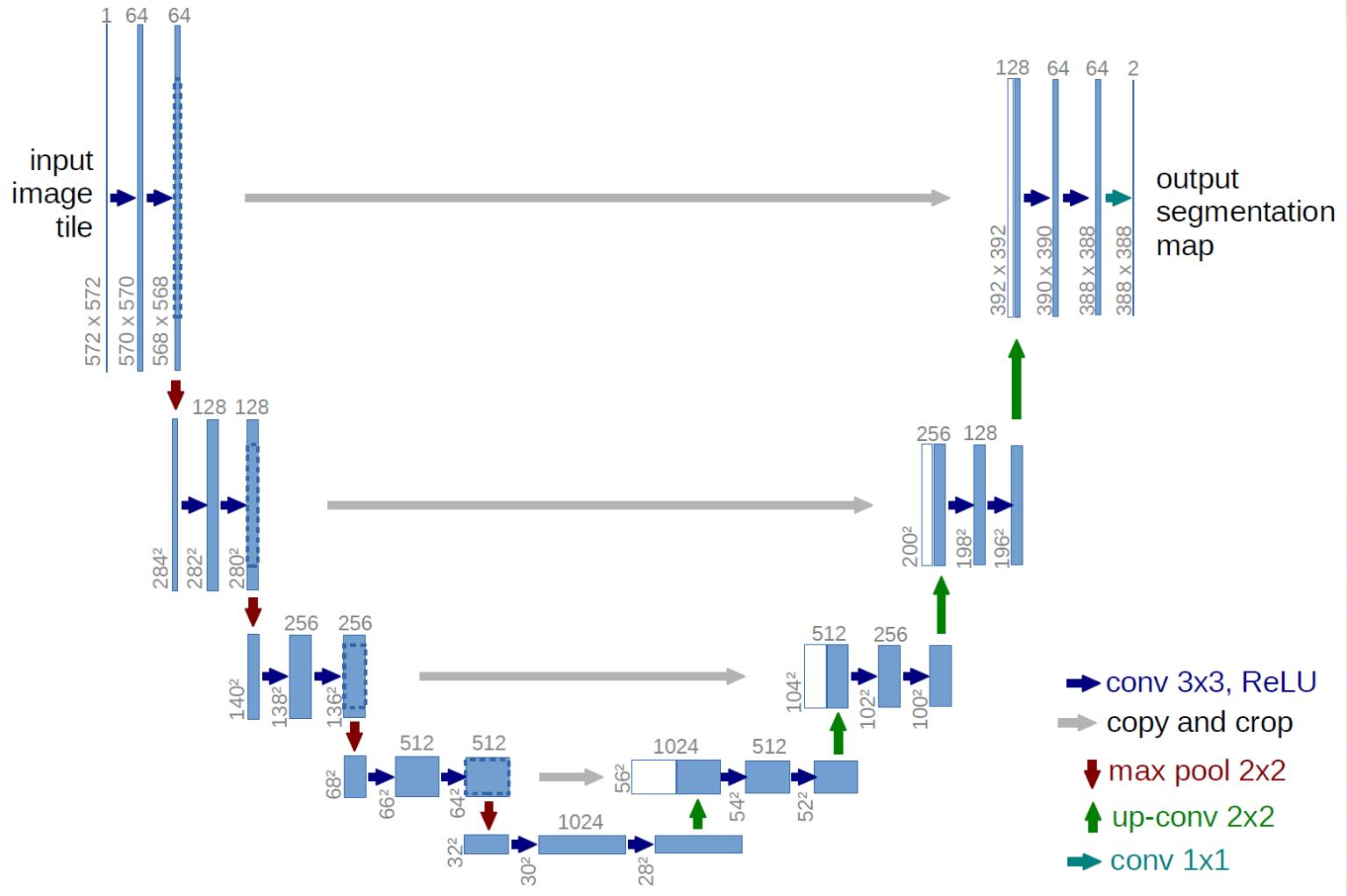
matplotlib

K Keras

OpenCV



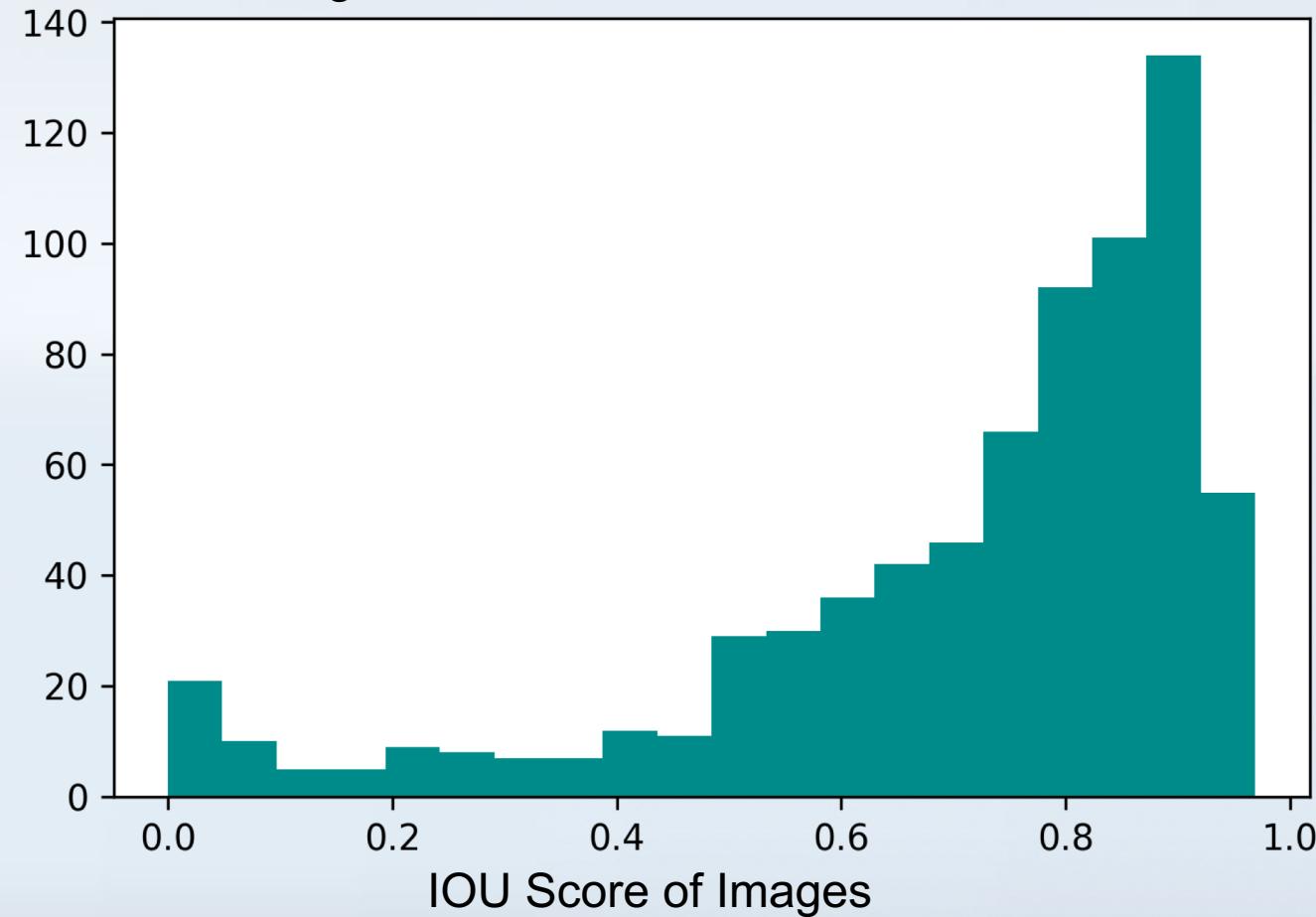
Model Architecture



Result



Number of Images Test Set IOU Distribution



Average IOU
= 0.83

Result

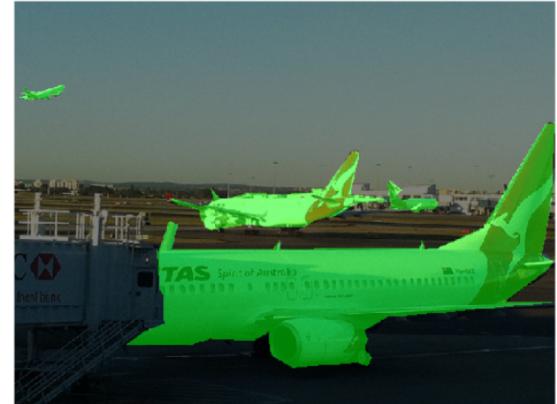
Original image



Predicted segmentation mask



Ground truth mask



Original image



Predicted segmentation mask



Ground truth mask



Future Work



- Test in real-time
- Train on more relevant data
- Augment some challenging images
- Transfer learning on other objects

Thank you!



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Leo's Data Science Portfolio



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Appendix – IOU



$$\text{IoU} = \frac{\text{Area of Overlap}}{\text{Area of Union}}$$



Appendix - Perfect Match



Original image



Predicted segmentation mask



Ground truth mask



Original image



Predicted segmentation mask



Ground truth mask



Appendix – False Positive



Original image



Predicted segmentation mask



Ground truth mask



Appendix – Bounding Boxes



Original



Segmentation



Bounding Box

