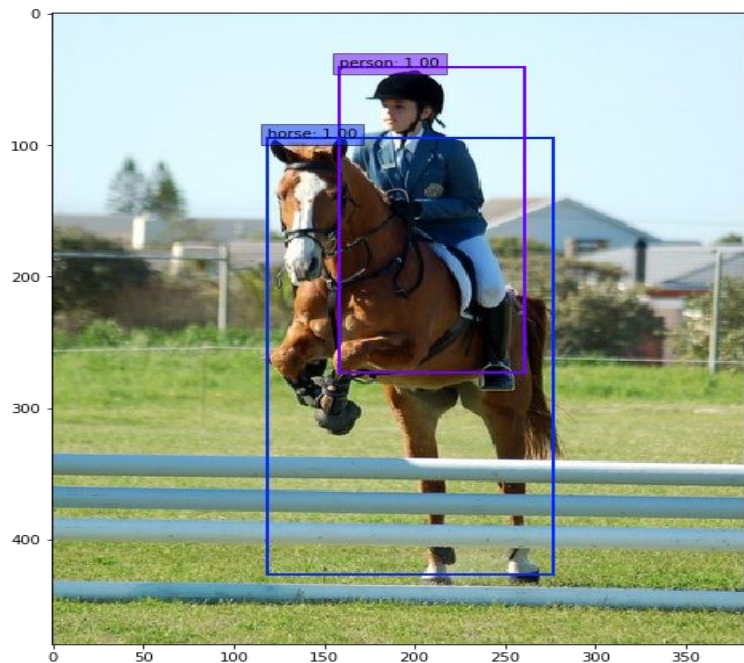


Object Detection

Computer Vision Course Project

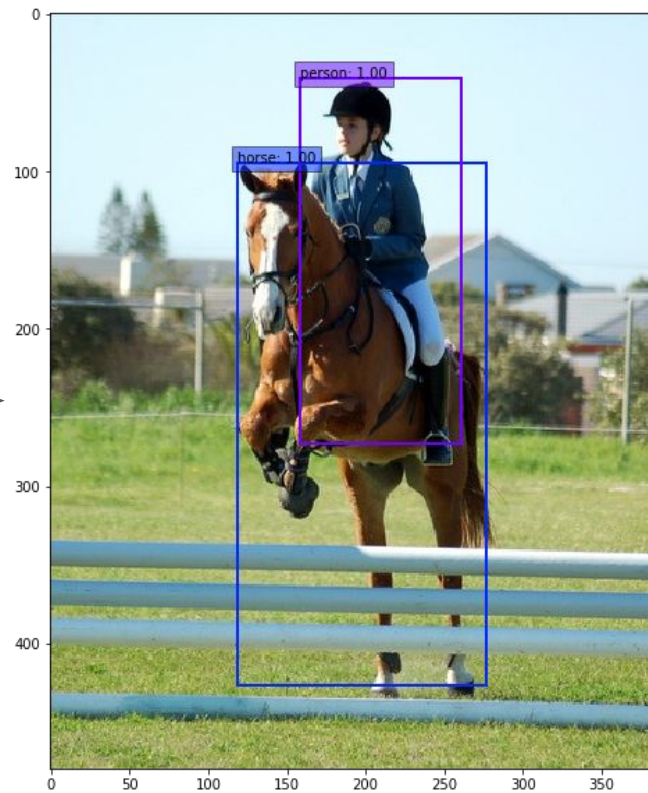


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Problem Statement



Challenges

Variable output dimension

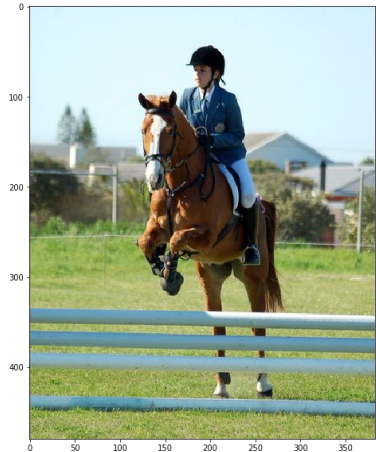


Output.shape = [4, 6]

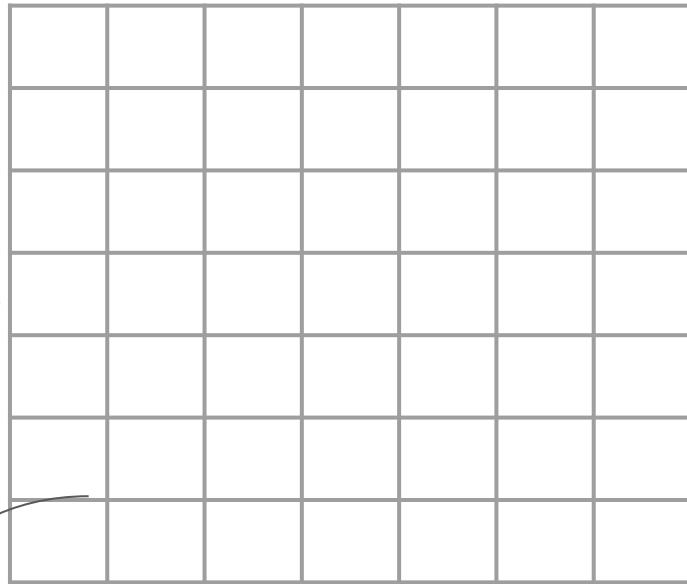


Output.shape = [2, 6]

Approach



Fully
Convolutional
Network



Element.shape = [NUM_ANCHORS, 4+1+NUM_CLASSES]

Results

$AP = 1/11 \sum \text{Precision}(\text{Recall})$ for each class

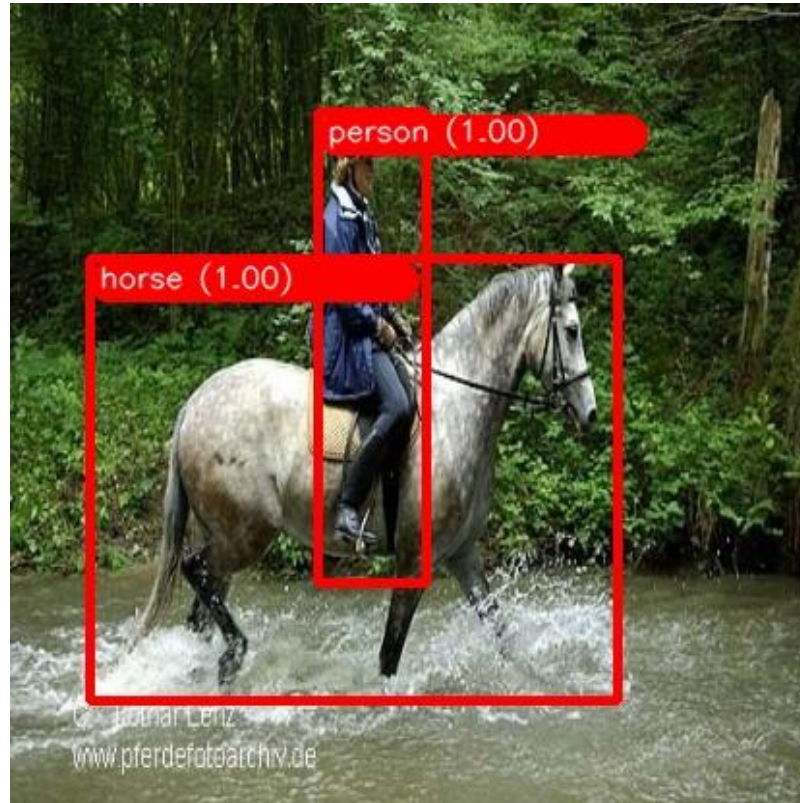
tvmonitor	0.88
aeroplane	0.83
bicycle	0.88
bird	0.81
boat	0.66
.	
.	
.	
sofa	0.97
train	0.93

mAP = 0.82

Results



Results



Results



Demonstration

Conclusion

- Trained the entire network from scratch
- Used pretrained weights of classification network
- Retrained on a single object (hand)
- Real-time performance