deeplearning.ai

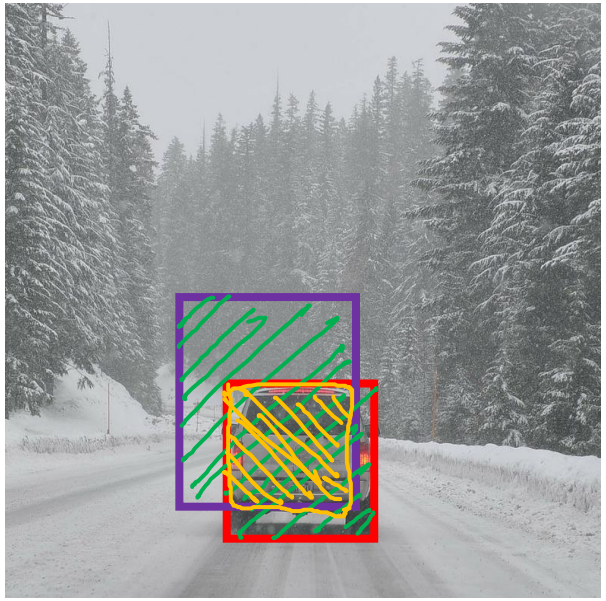
Object Detection

Intersection over union

In this video, you'll learn about a function called intersection over union, and we use both for evaluating your object detection algorithm as well as in the next video, using it to add another component to your object detection algorithm to make it work even better.

Evaluating object localization

it computes the intersection over union of these bounding boxes.



Intersection over Union (IoU)

$$= \frac{\text{Size of } \square}{\text{Size of } \square}$$

size of intersection

size of the union

"Correct" if IoU $\geq$ 0.5

0.6

And so, this is one way to map localization to accuracy, where you just count up the number of times and algorithm correctly detects and localizes an object where you can use definition like this of whether or not the object is correctly localized.

0.5 is just human-chosen convention, there's no particularly deep theoretical reason for it.

More generally, IoU is a measure of the overlap between two bounding boxes.

Andrew Ng