Back **Detection Algorithms**
Graded Quiz • 30 min

coursera

Due Apr 25, 2:59 PM CST

Item Navigation

Congratulations! You passed!

Grade received 80% **To pass** 80% or higher

Go to next item

Detection Algorithms

Quiz • 30 min

Detection Algorithms

Submit your assignment

Latest Submission Grade 80%

Due Apr 25, 2:59 PM CST **Attempts** 3 every 8 hours

Try again

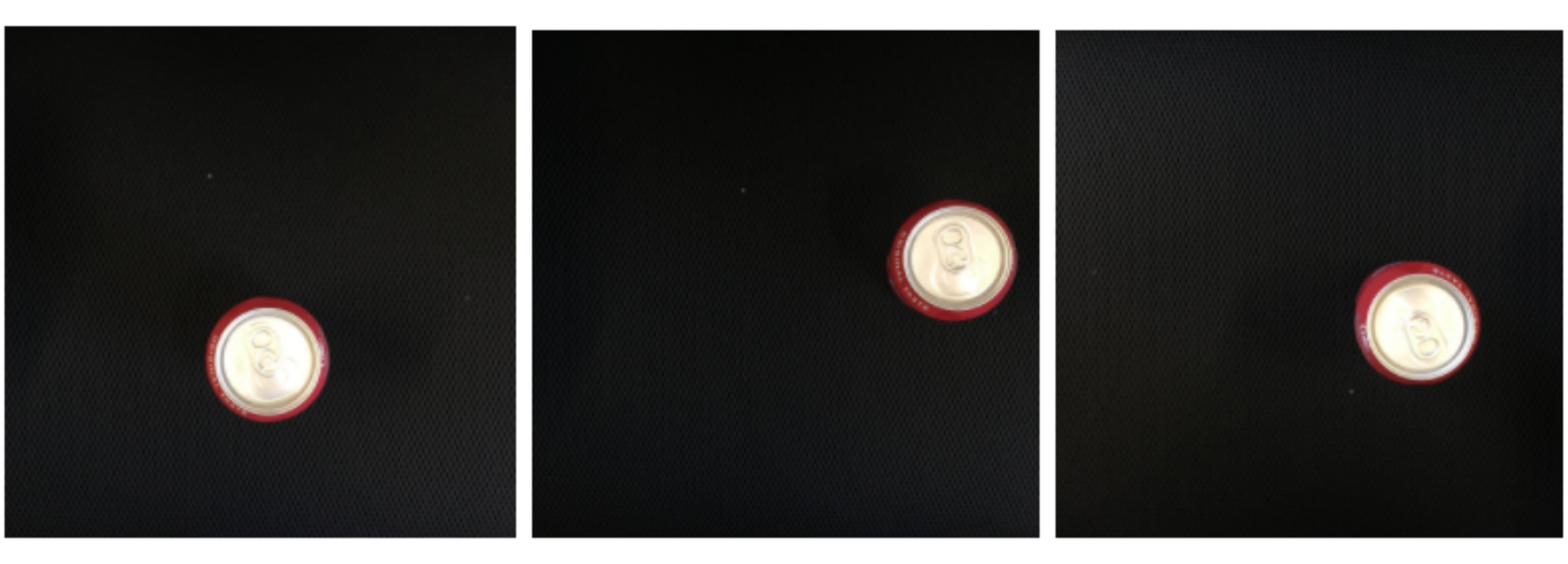
1. You are building a 3-class object classification and localization algorithm. The classes are: pedestrian (c=1), car (c=2), motorcycle (c=3). What should y be for the image below? Remember that "?" means "don't care", which means that the neural network loss function won't care what the neural network gives for that component of the output. Recall $y = [p_c, b_x, b_y, b_h, b_w, c_1, c_2, c_3]$. **1 / 1 point**

https://www.pexels.com/es-es/foto/mujer-vestida-con-falda-azul-y-blanca-caminando-cerca-de-la-hierba-verde-durante-el-dia-144474/

- (●) $y = [1, 0.66, 0.5, 0.75, 0.16, 1, 0, 0]$
- ( ) $y = [1, ?, ?, ?, ?, 1, ?, ?]$
- ( ) $y = [1, 0.66, 0.5, 0.16, 0.75, 1, 0, 0]$
- ( ) $y = [1, 0.66, 0.5, 0.75, 0.16, 0, 0, 0]$

Correct
Correct. $p_c = 1$ since there is a pedestrian in the picture. We can see that b_x, b_y as percentages of the image are approximately correct as well b_h, b_w, and the value of $c_1 = 1$ for a pedestrian.

2. You are working on a factory automation task. Your system will see a can of soft-drink coming down a conveyor belt, and you want it to take a picture and decide whether (i) there is a soft-drink can in the image, and if so (ii) its bounding box. Since the soft-drink can is round, the bounding box is always square, and the soft drink can always appear the same size in the image. There is at most one soft drink can in each image. Here are some typical images in your training set: **1 / 1 point**



What are the most appropriate (lowest number of) output units for your neural network?

- ( ) Logistic unit, b_x, b_y, b_h (since b_w = b_h)
- (●) Logistic unit, b_x and b_y
- ( ) Logistic unit (for classifying if there is a soft-drink can in the image)
- ( ) Logistic unit, b_x, b_y, b_h, b_w

Correct
Correct!

3. If you build a neural network that inputs a picture of a person's face and outputs N landmarks on the face (assume the input image always contains exactly one face), how many output units will the network have? **1 / 1 point**

- ( ) N^2
- ( ) 3N
- ( ) N
- (●) 2N

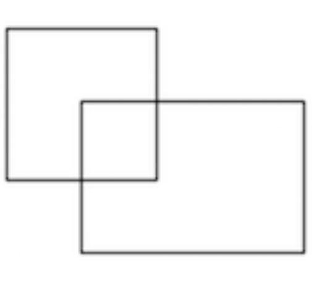
Correct
Correct

4. When training one of the object detection systems described in the lectures, each image must have zero or exactly one bounding box. True/False? **0 / 1 point**

- ( ) False
- (●) True

Incorrect
Incorrect. In a single image, there might be more than only one instance of the object we are trying to localize, so it must have several bounding boxes.

5. What is the IoU between these two boxes? The upper-left box is 2x2, and the lower-right box is 2x3. The overlapping region is 1x1. **1 / 1 point**



- ( ) 1/10
- ( ) None of the above
- (●) 1/9
- ( ) ⅙

Correct
Correct. The left box's area is 4 while the right box 's is 6. Their intersection's area is 1. So their union's area is 4 + 6 - 1 = 9 which leads to an intersection over union of 1/9.

6. Suppose you run non-max suppression on the predicted boxes below. The parameters you use for non-max suppression are that boxes with probability $\leq$ 0.4 are discarded, and the IoU threshold for deciding if two boxes overlap is 0.5. How many boxes will remain after non-max suppression? **1 / 1 point**

- ( ) 3
- ( ) 4
- (●) 5
- ( ) 6
- ( ) 7

Correct
Correct!

7. If we use anchor boxes in YOLO we no longer need the coordinates of the bounding box b_x, b_y, b_h, b_w since they are given by the cell position of the grid and the anchor box selection. True/False? **1 / 1 point**

- (●) False
- ( ) True

Correct
Correct. We use the grid and anchor boxes to improve the capabilities of the algorithm to localize and detect objects, for example, two different objects that intersect, but we still use the bounding box coordinates.

8. We are trying to build a system that assigns a value of 1 to each pixel that is part of a tumor from a medical image taken from a patient. **1 / 1 point**

This is a problem of localization? True/False

- ( ) True
- (●) False

Correct
Correct. This is a problem of semantic segmentation since we need to classify each pixel from the image.