deeplearning.ai

Object Detection

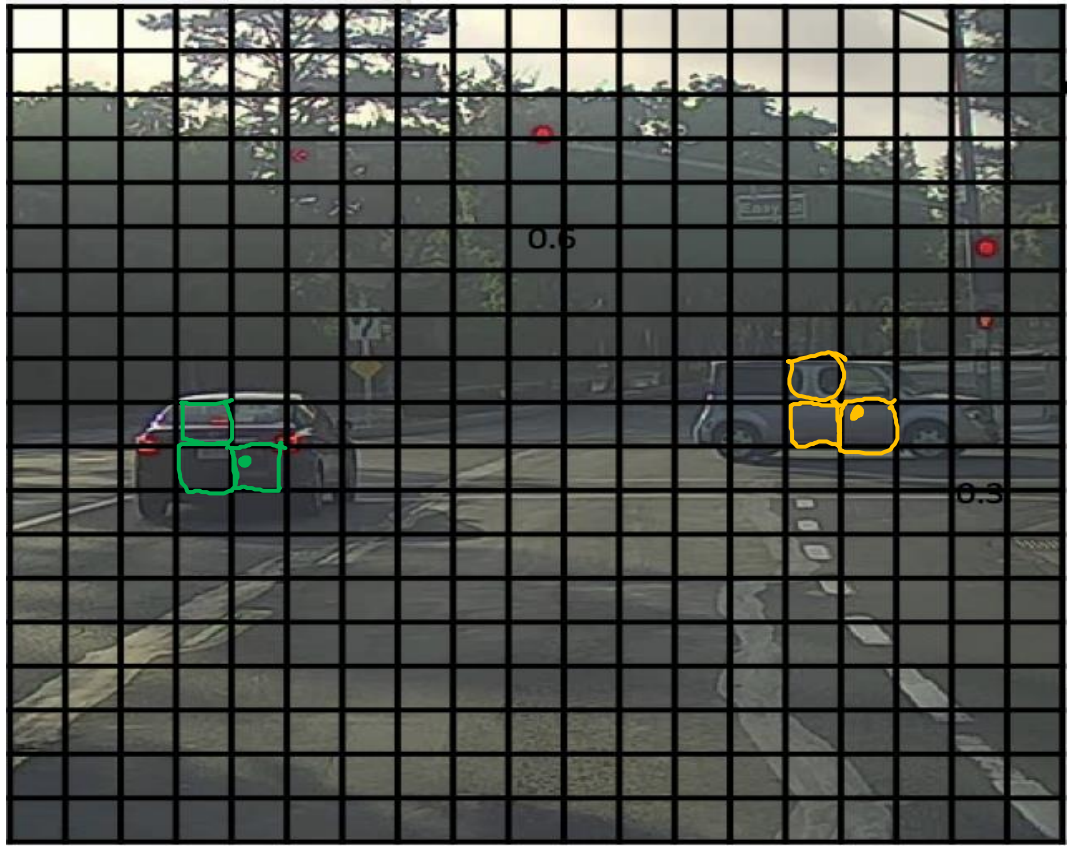
Non-max suppression

One of the problems of object detection as you've learned about so far is that your algorithm may find multiple detections of the same object so rather than detecting an object just once it might detect it multiple times.

Non-max suppression is a way for you to make sure that your algorithm detects each object only once.

Non-max suppression example

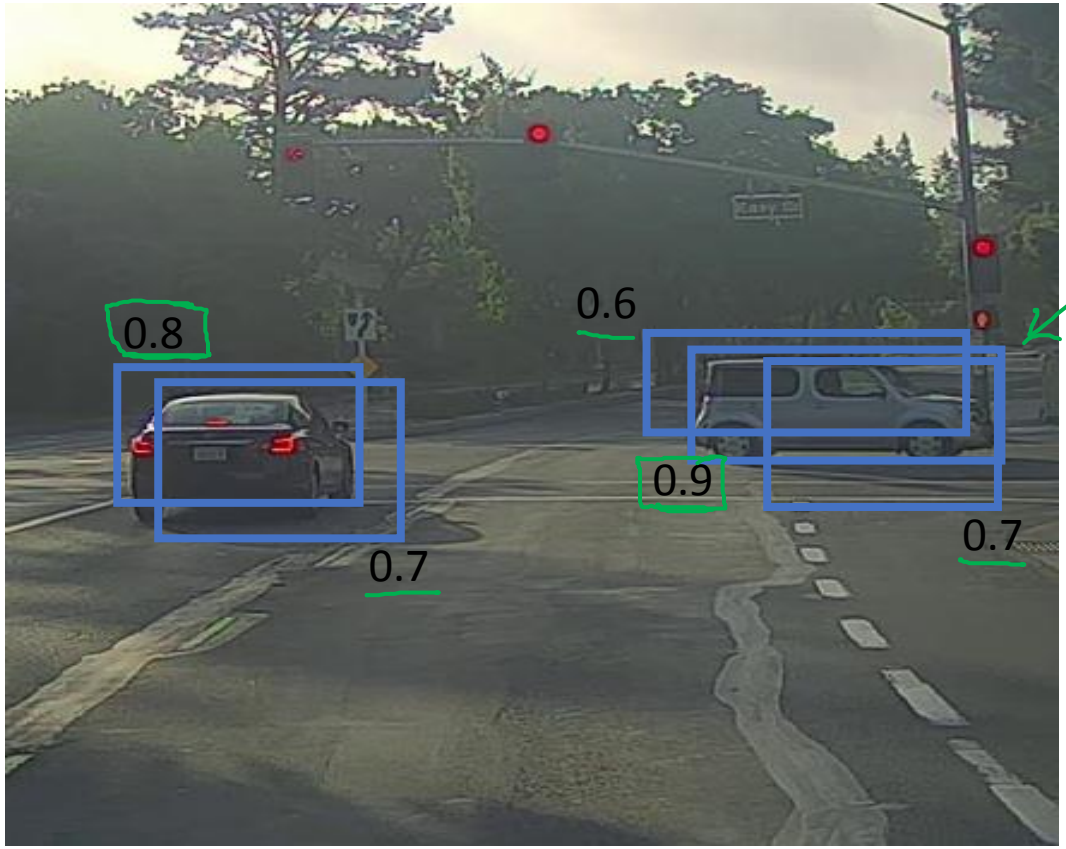
Non-max suppression example



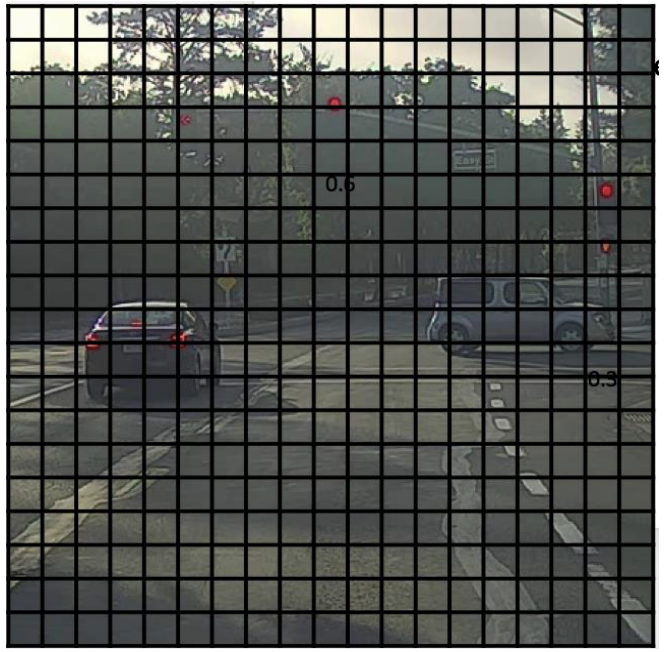
19×19

Non-max suppression example

Output your maximal probabilities classifications but suppress it close by ones that are non maximal, so that's as a name non max suppression.



Non-max suppression algorithm



19× 19

Each output prediction is:

$$\begin{bmatrix} p_c \\ b_x \\ b_y \\ b_h \\ b_w \end{bmatrix}$$

Discard all boxes with $p_c \leq 0.6$

While there are any remaining boxes:

- Pick the box with the largest p_c
  Output that as a prediction.
- Discard any remaining box with IoU ≥ 0.5 with the box output in the previous step

If you actually try to detect three objects say pedestrians, cars and motorcycles then output vector will have three additional components and it turns out the right thing to do is to independently carry out non-max suppression three times one on each of th outputs classes.

Andrew Ng