

Supplementary Material for Learning Intelligent Dialogs for Bounding Box Annotation

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This supplementary material showcases the dialogs produced by the proposed Intelligent Annotation Dialog strategy IAD-Prob. We show several dialogs produced at the iteration 5 of experiment with retrained detector (Sec. 5.3). Note that we illustrate the dialogs' *execution* and not *planned* dialogs. In this case, if the first box proposal is accepted, we will only show dialog with one action V no matter what action is planned in case of rejection. Questions to a human annotator are written at the top of images, box proposals for verification are shown in yellow, manually drawn bounding boxes are shown in blue and responses of the annotator are at the bottom of each image.

Next, we demonstrate several groups of examples of dialogs for which we provide our intuitive interpretation.

*This work was done during an internship at Google AI Perception

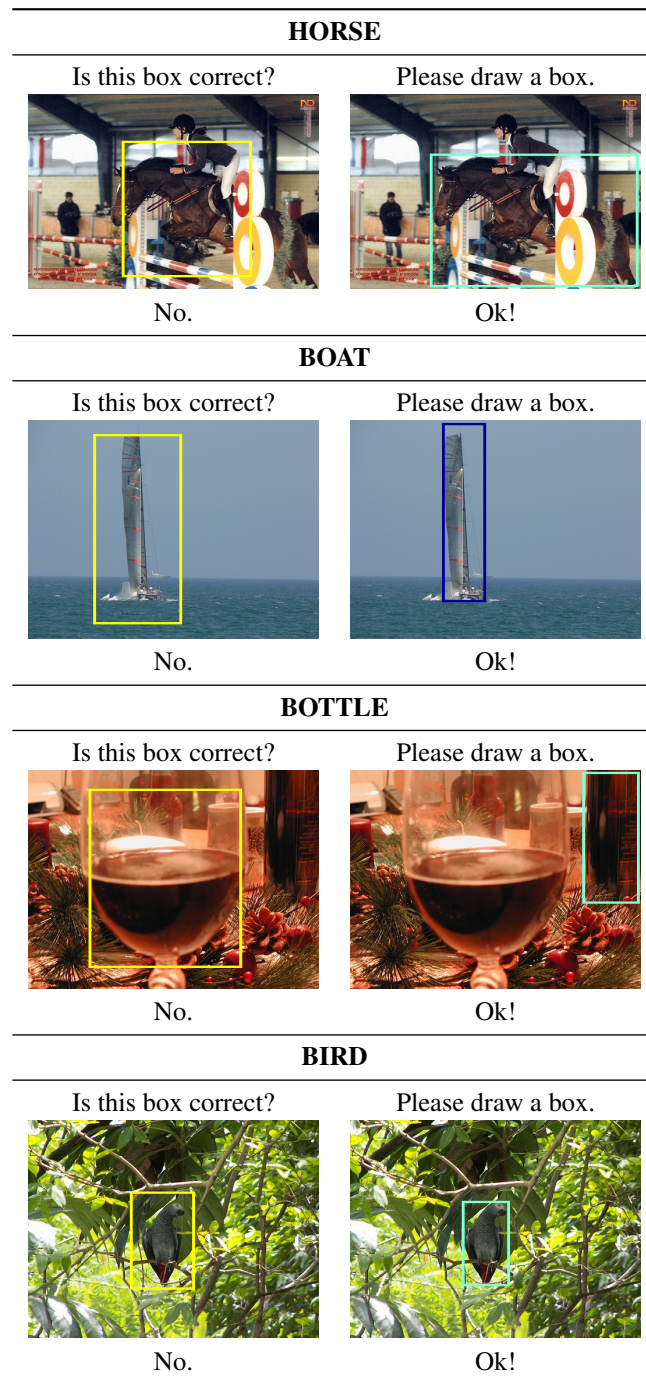


Figure 1. If the detector's output is strong on one bounding box, but this box is rejected due to some reason (not tight enough, occluded part is missing, object belongs to another class), then box verification is followed by manual drawing.

MOTORBIKE

Is this box correct?



No.

Is this box correct?



Yes!

PLANE

Is this box correct?



No.

Is this box correct?



No.

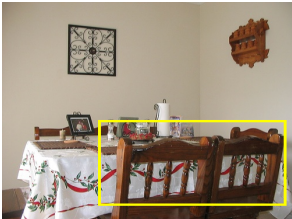
Is this box correct?



Yes!

DINING TABLE

Is this box correct?



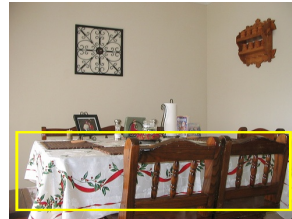
No.

Is this box correct?



No.

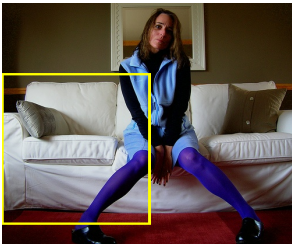
Is this box correct?



Yes!

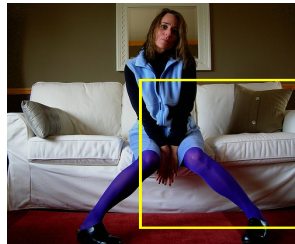
SOFA

Is this box correct?



No.

Is this box correct?



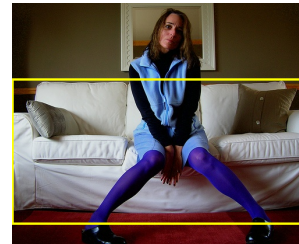
No.

Is this box correct?



No.

Is this box correct?



Yes!

Figure 2. When the visual evidence for some object is strong, but the exact boundaries are hard to capture, a series of verifications can help to localise the object.

TRAIN

Is this box correct?



No.

Is this box correct?



No.

Please draw a box.



Ok!

DINING TABLE

Is this box correct?



No.

Is this box correct?



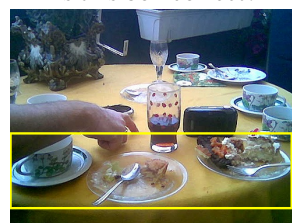
No.

Is this box correct?



No.

Is this box correct?



No.

Please draw a box.



Ok!

Figure 3. When high-scored boxes for verification are exhausted, manual drawing is done.

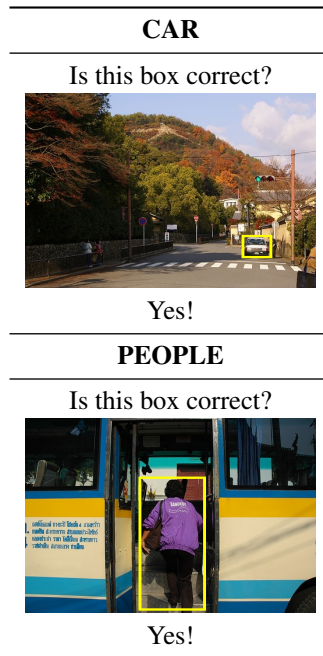


Figure 4. Object of classes for which detector is strong are found with box verification even in complex scenes and configurations.

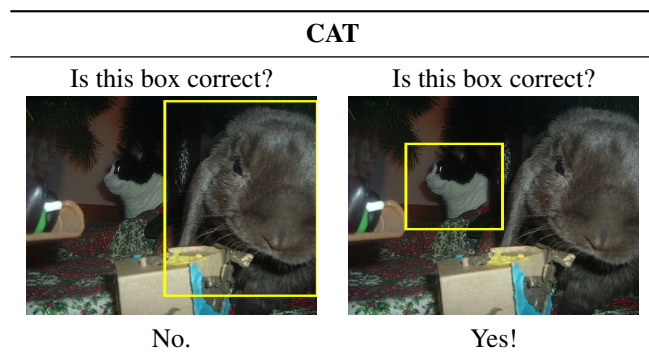


Figure 5. When the detector's output is strong on two objects in the scene, the correct bounding box is obtained with a series of box verifications. In this example the detector is confused between a rabbit and a cat.

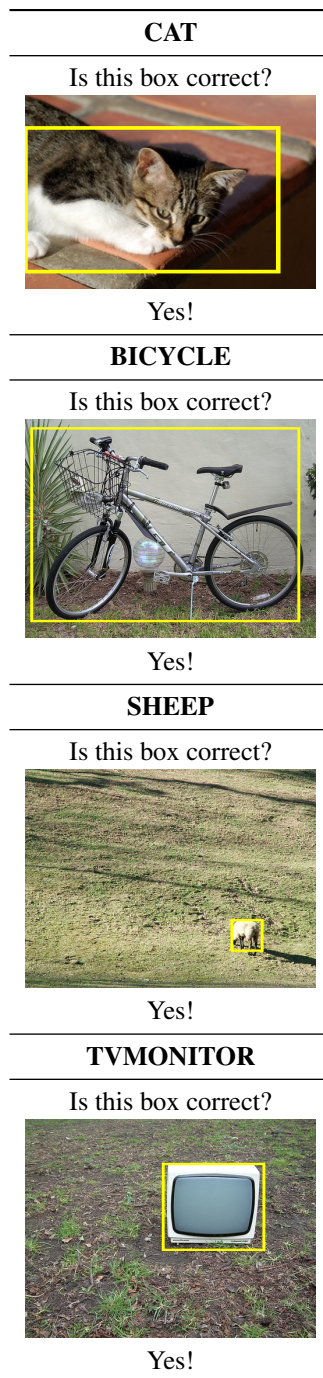


Figure 6. Easily distinguishable by appearance objects on relatively uniform background are often found with one verification for both big and small objects.

CHAIR

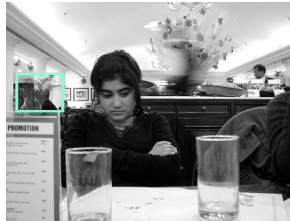
Please draw a box.



Ok!

POTTED PLANT

Please draw a box.



Ok!

BUS

Please draw a box.



Ok!

POTTED PLANT

Figure 7. Small objects in cluttered scenes or objects without strong visual clues are annotated with manual drawing.