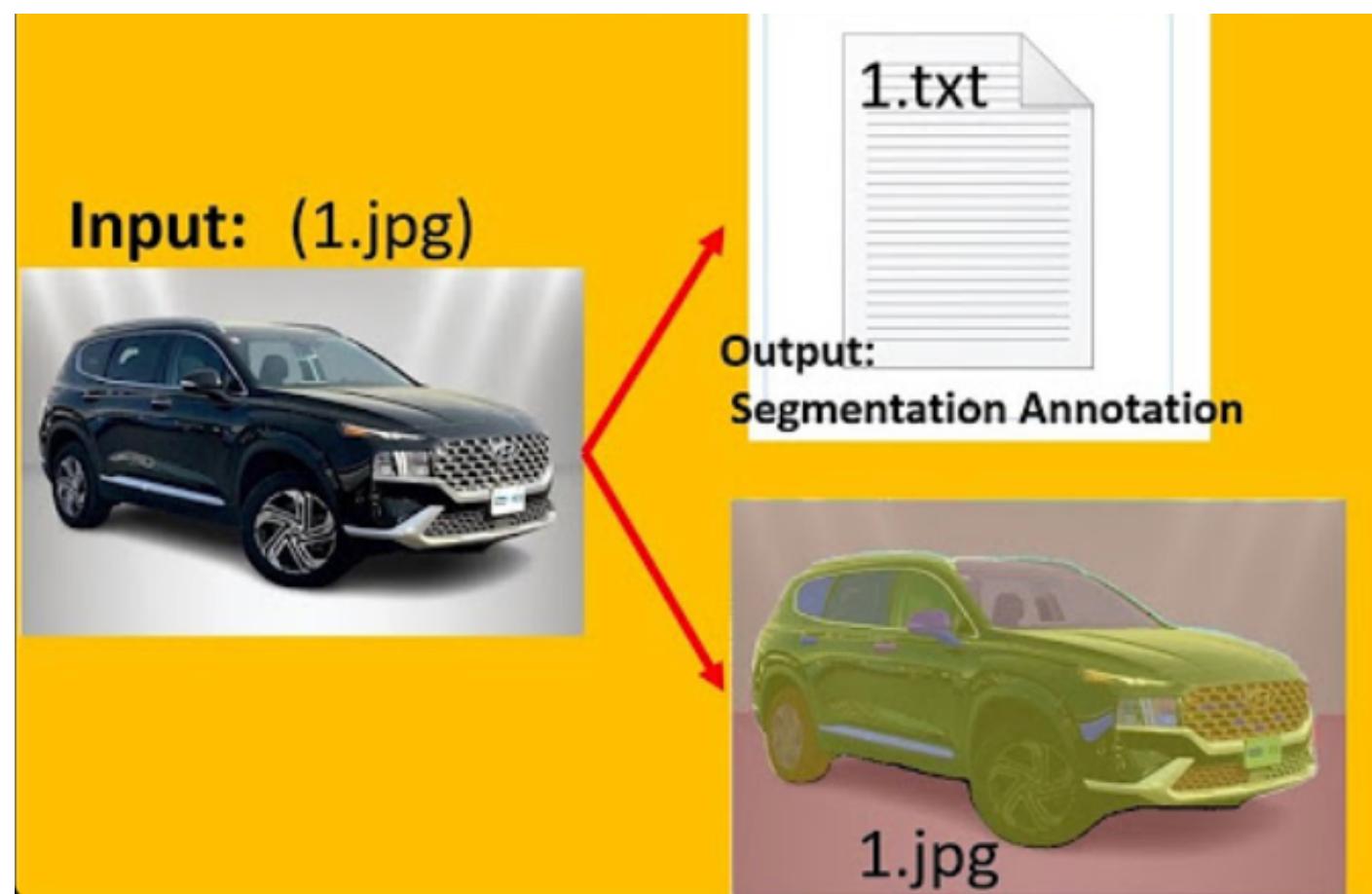


Auto Annotation

What is Auto Annotation

A process that involves using algorithms to automatically label or tag data, such as images or text, without requiring human intervention.

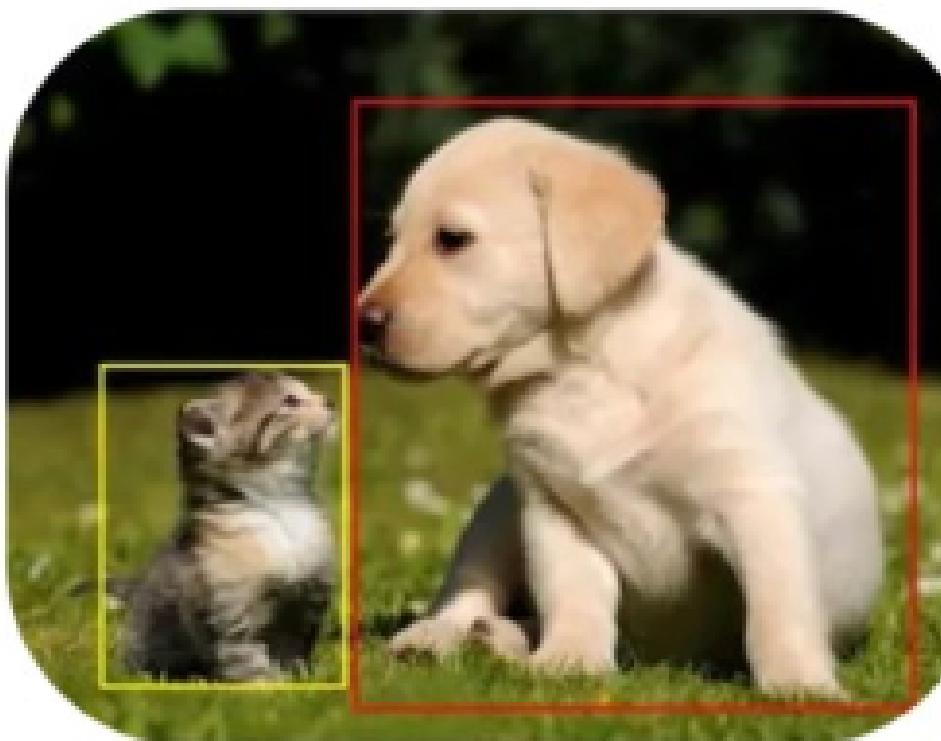




OBJECT DETECTION

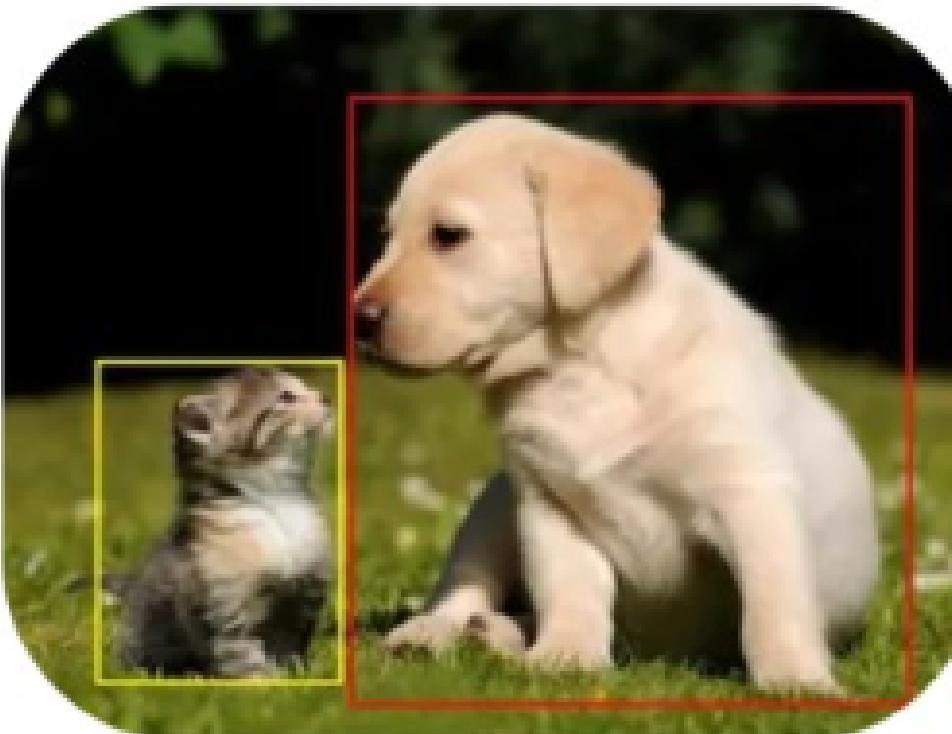


What is there in image
and where?



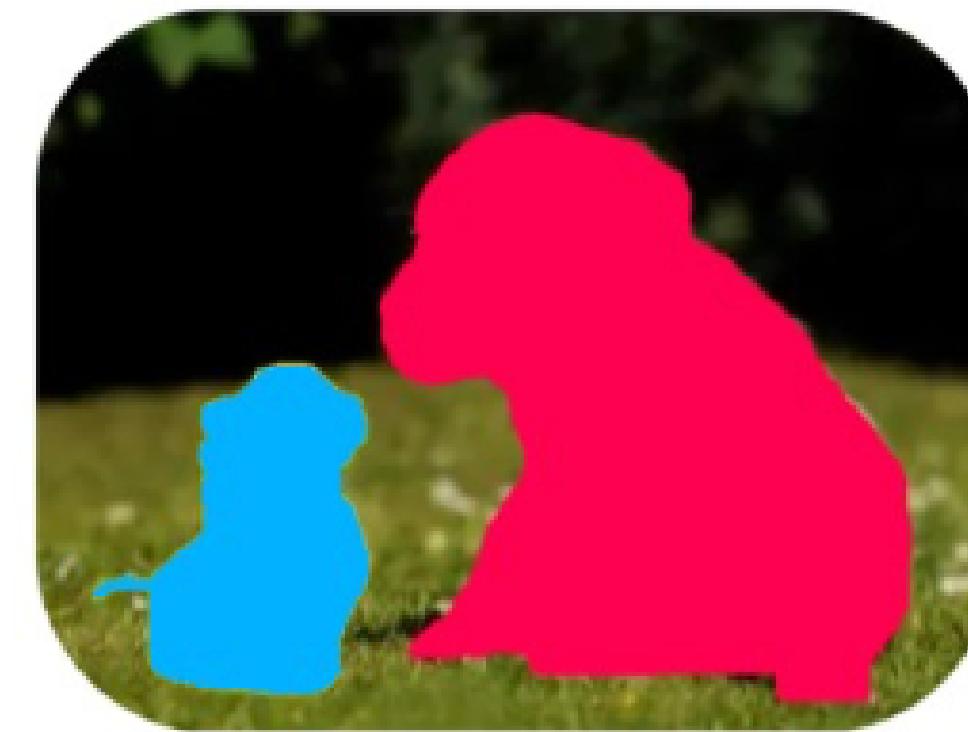
Q **OBJECT DETECTION** X

What is there in image
and where?



Q **SEGMENTATION** X

Which pixels belong to
which object?

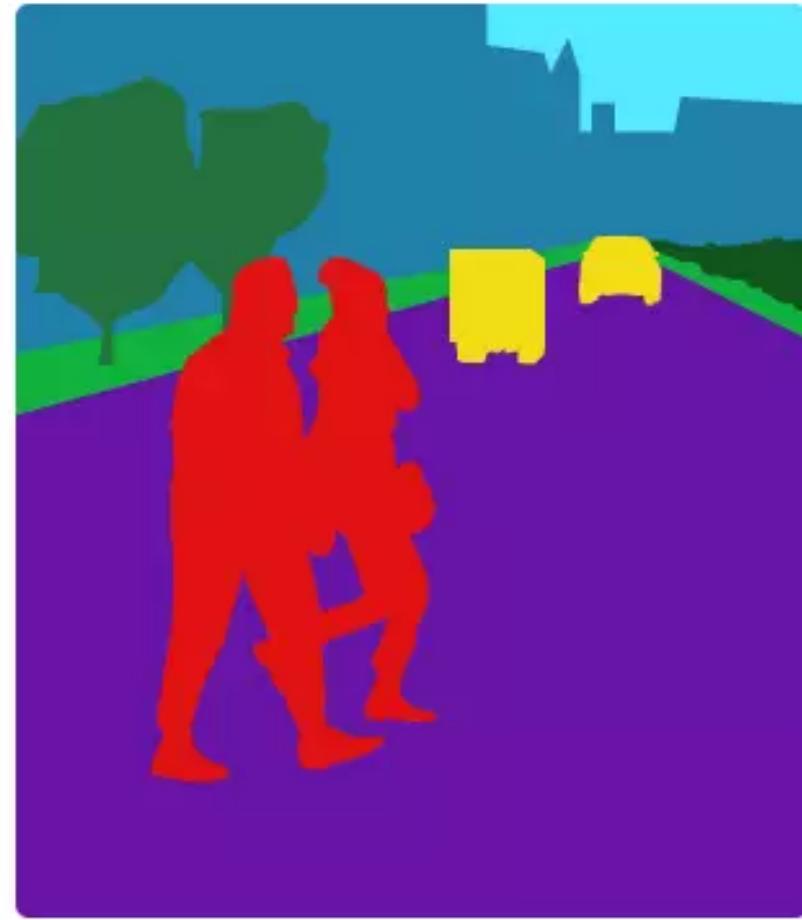


Object detection model comparison

| model | task | mAP ₅₀₋₉₅ (COCO) | paper | packaging | license | size (M) |
|---------------|---------------------|-----------------------------|-------|-----------|------------|--------------|
| YOLOv8 | real-time detection | 37.3 - 53.9 | ✗ | ✓ | AGPL-3.0 | 3.2 - 68.2 |
| YOLOv7 | real-time detection | 51.4 - 56.8 | ✓ | ✗ | GPL-3.0 | 36.9 - 151.7 |
| YOLOv6-v3 | real-time detection | 37.5 - 57.2 | ✓ | ✗ | GPL-3.0 | 4.7 - 140.4 |
| RTMDet | real-time detection | 41.0 - 52.8 | ✓ | ✓ | Apache-2.0 | 4.8 - 94.9 |
| RT-DETR | real-time detection | 46.5 - 54.8 | ✓ | ✓ | Apache-2.0 | 20.0 - 67.0 |
| DETA | detection | 63.5 | ✓ | ✓ | Apache-2.0 | 47 |
| GroundingDINO | zero-shot detection | 52.5 | ✓ | ✓ | Apache-2.0 | 172 |

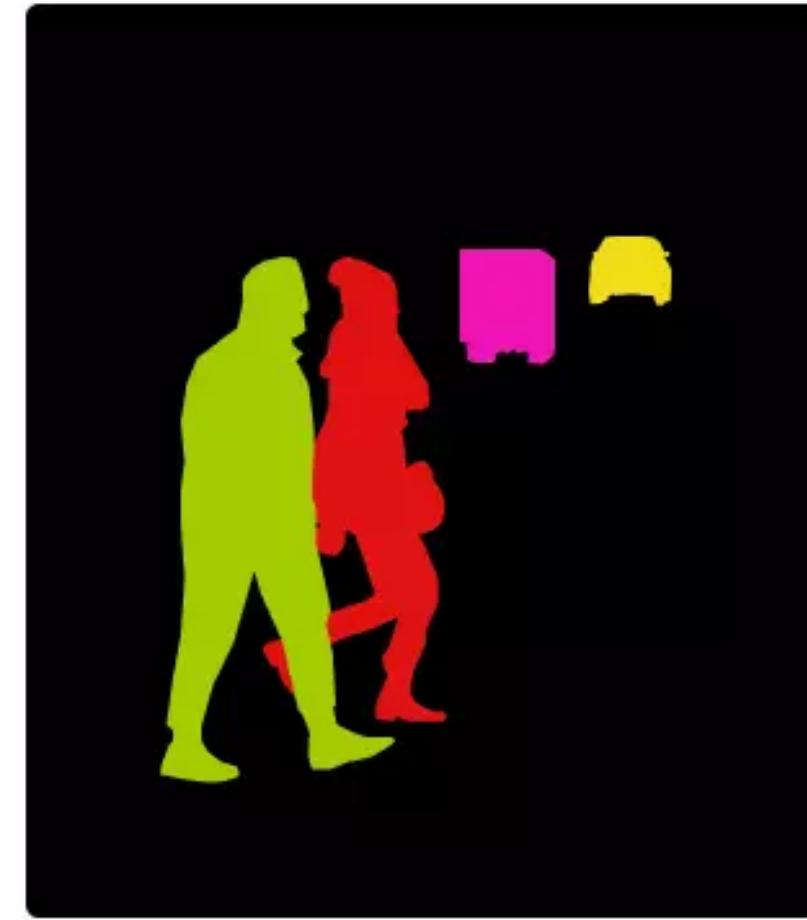
*Biometric from P'Noey might be better

Types of Image Segmentation



**SEMANTIC IMAGE
SEGMENTATION**

People, Car



**INSTANCE
SEGMENTATION**

Man, Women, Car Truck



**PANOPTIC
SEGMENTATION**

Combine

Tools

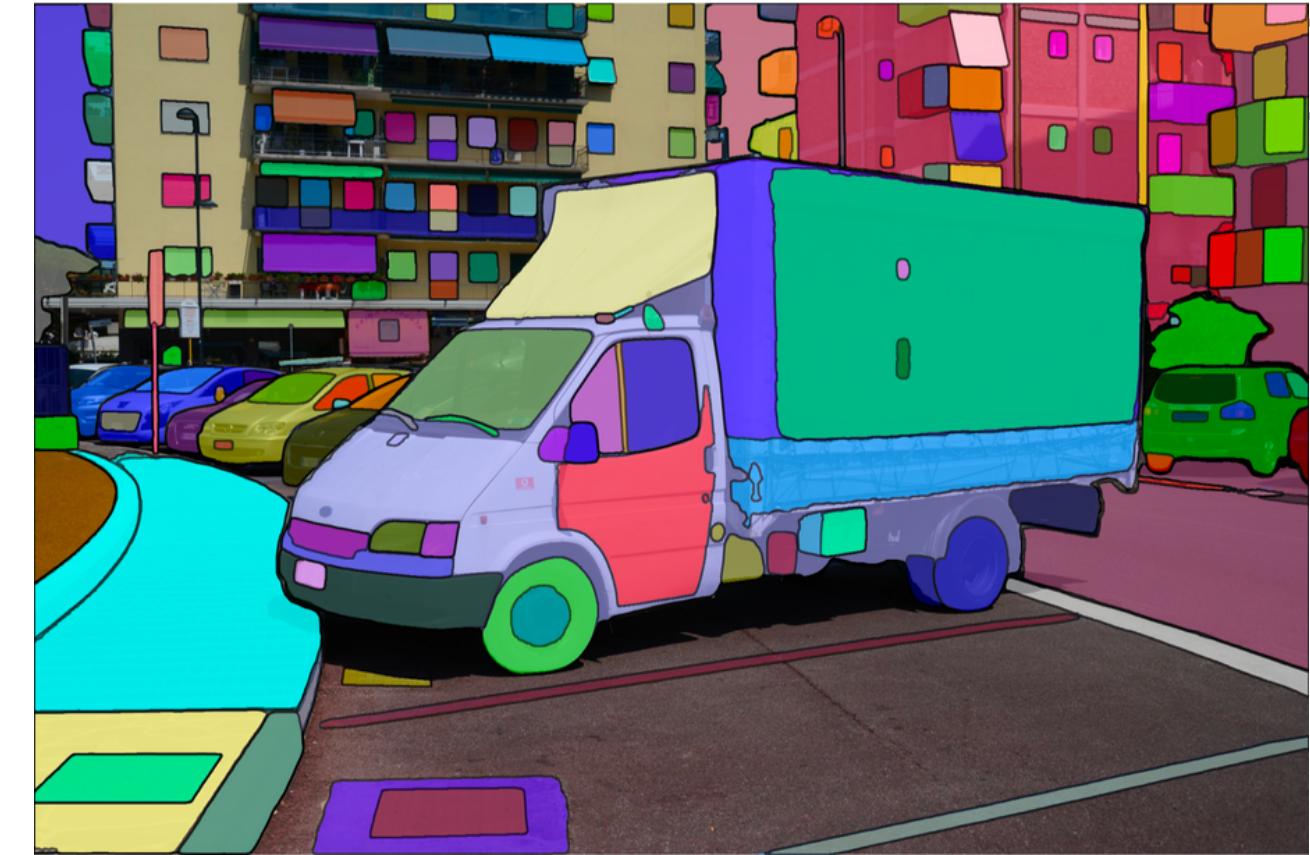
Object detection models

- Grounding DINO
- Yolov8
- Yolo-World

Segmentation model

- Segment Anything Model (SAM)

Expected Results

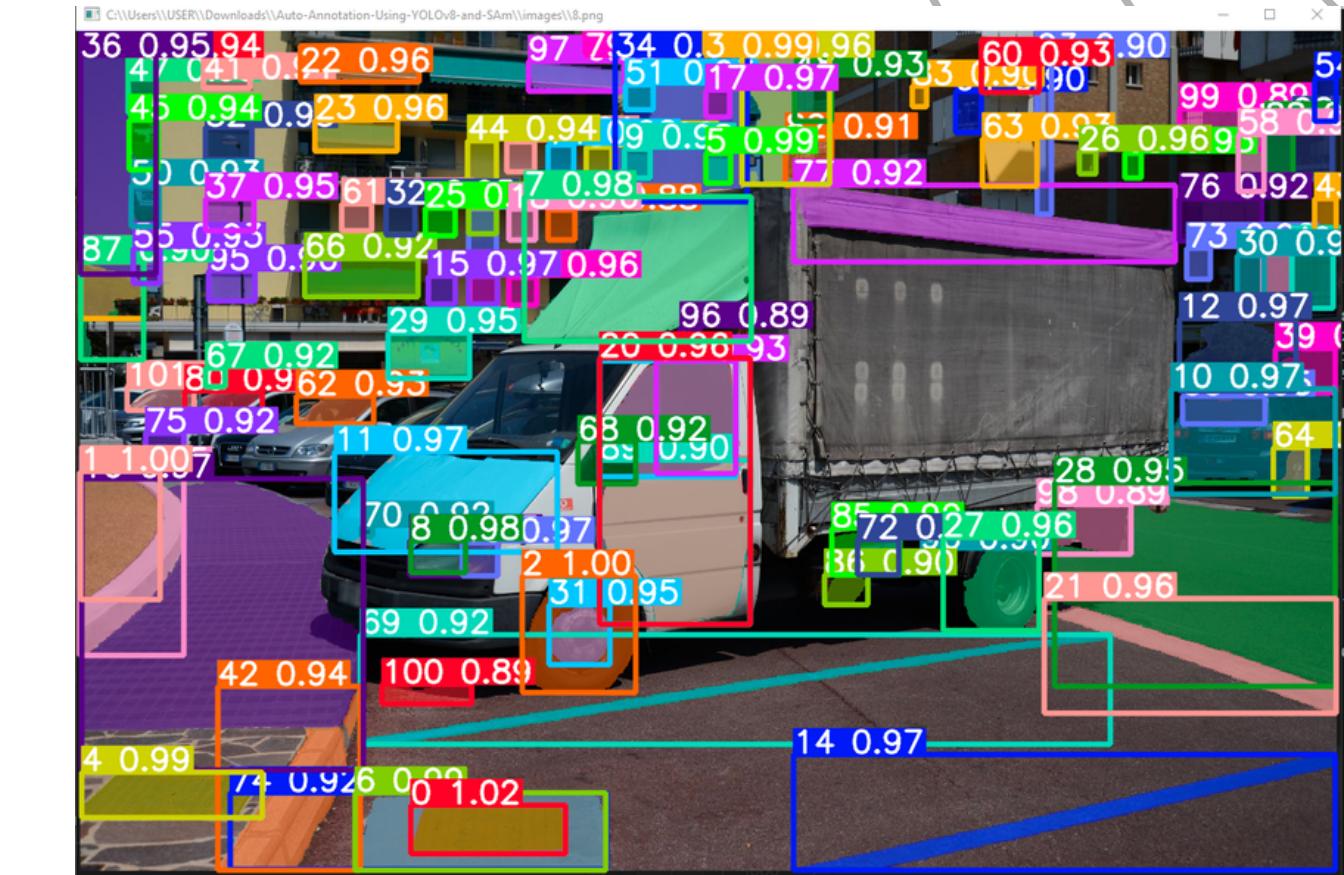


Segment Anything | Meta AI

Web site created using create-react-app

segment-anything.com

Results (SAM predict)



```
from ultralytics import SAM

# sam_l.pt and sam_b.pt

model = SAM('sam_b.pt')

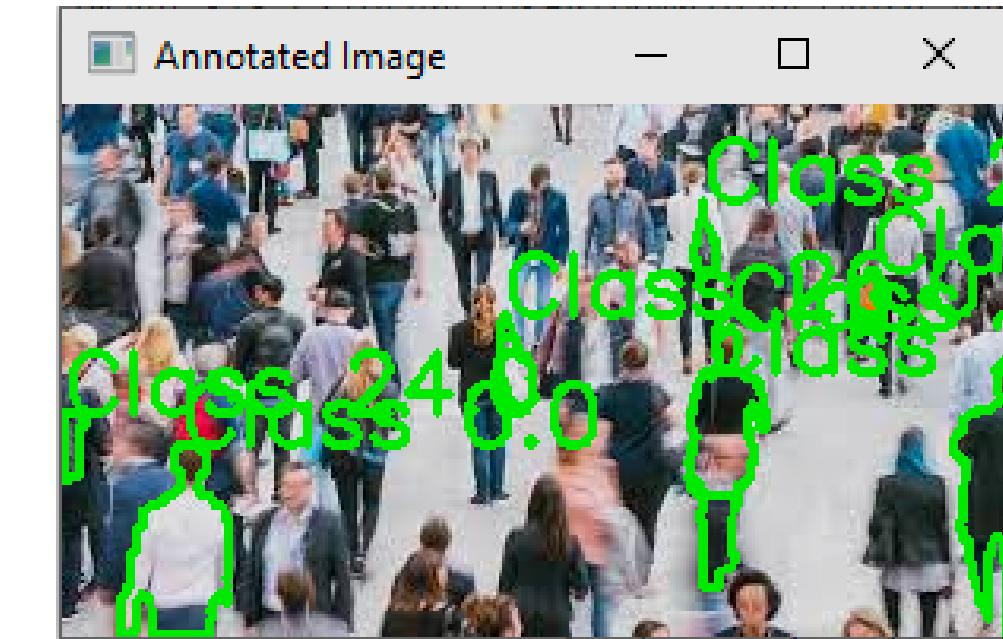
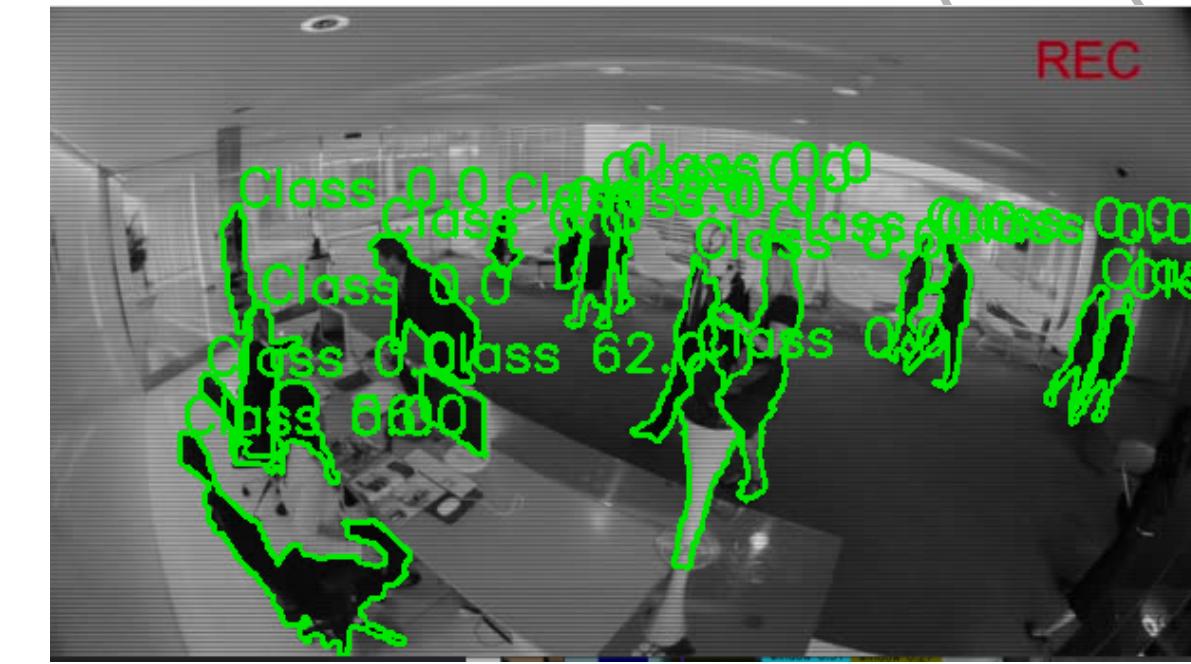
annotations = model.predict('images/10.jpg', show=True)
```

Results (SAM auto annotation)



```
from ultralytics.data.annotator import auto_annotate  
  
auto_annotate(data="images", det_model="yolov8x.pt", sam_model='sam_l.pt')
```

Results (SAM auto annotation)



Results (GroundingDINO)



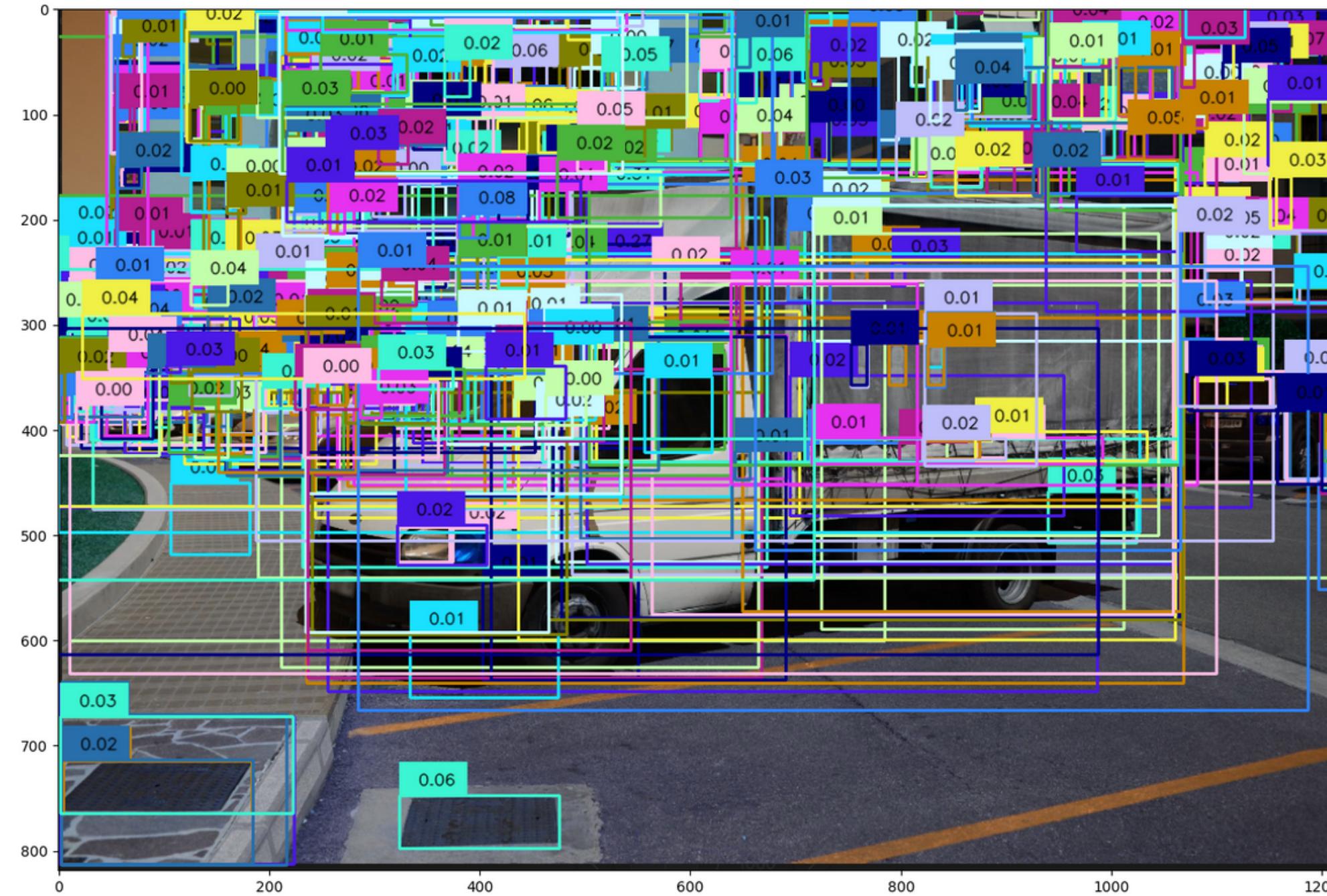
BOX_THRESHOLD = 0.2, TEXT_THRESHOLD = 0.25

Results (GroundingDINO)



BOX_THRESHOLD = 0.2 TEXT_THRESHOLD = **0.01**

Results (GroundingDINO)



BOX_TRESHOLD = 0.0001, TEXT_TRESHOLD = 0.25

Results (Yolo-World)



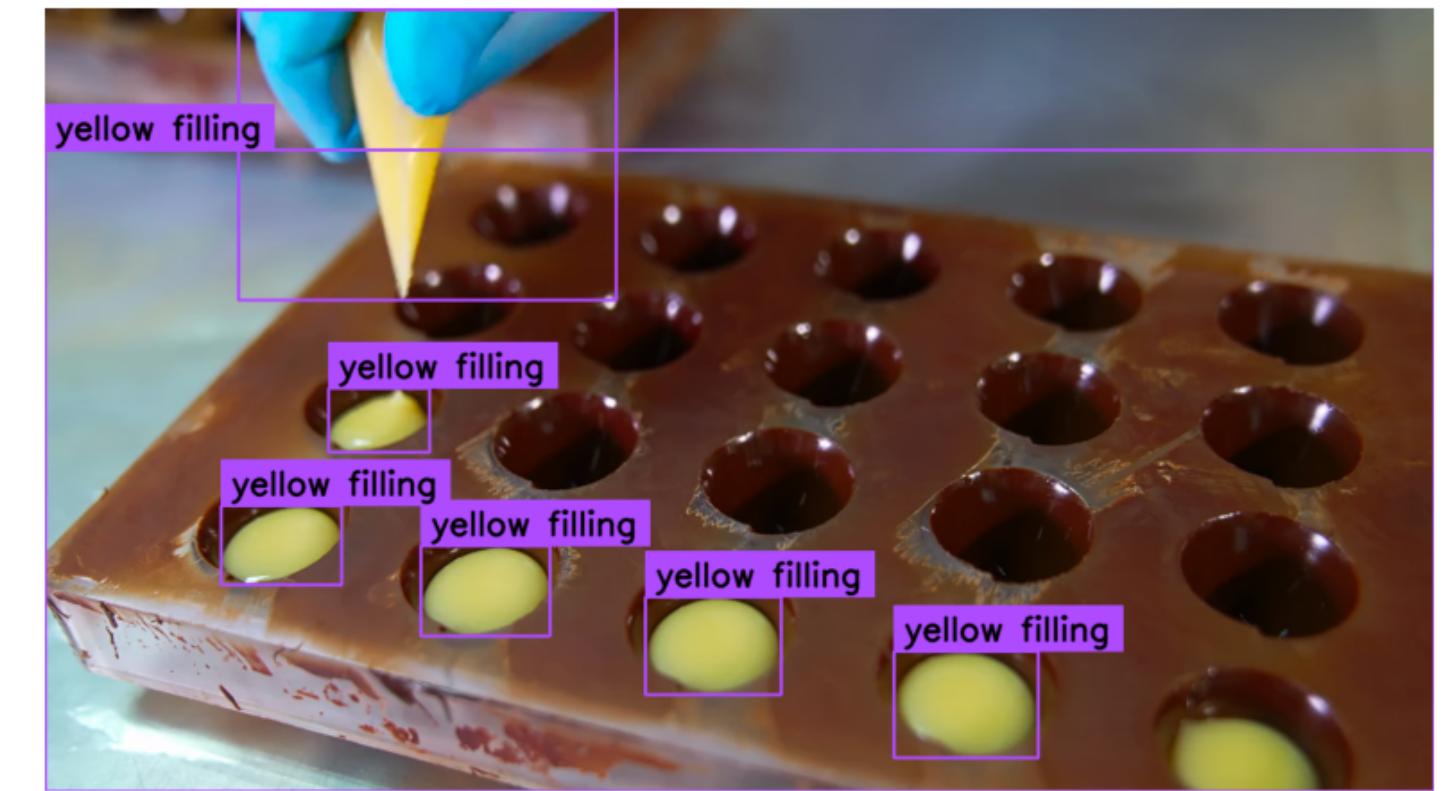
BOX_THRESHOLD = 0.2 + Prompt: truck, car

Results (Yolo-World)



BOX_THRESHOLD = 0.0001 + Prompt: window, truck, car

Results (Yolo-World)

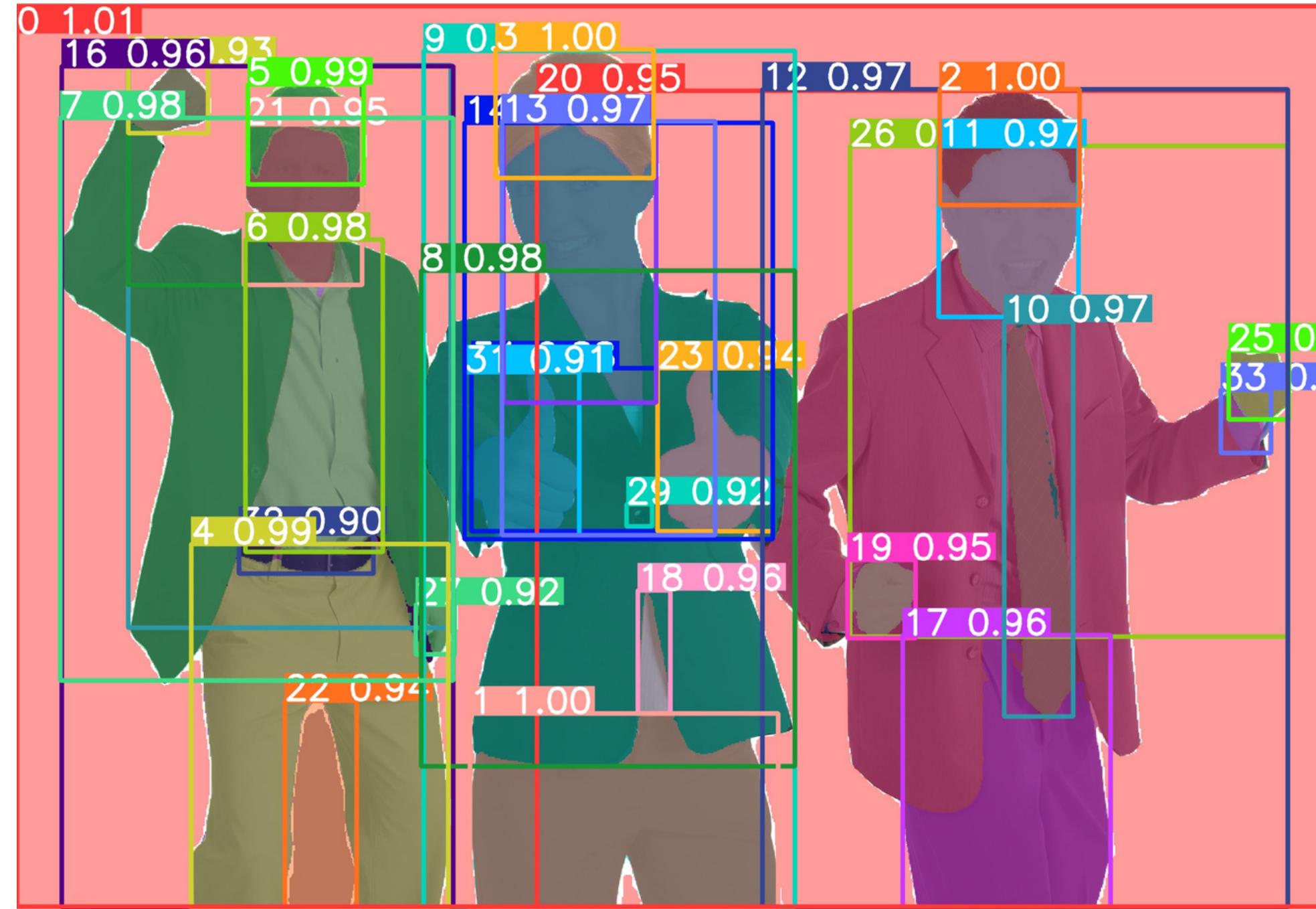


Results (Yolo-World)



Prompt: blue shirt, conf: 0.001

Results (Yolo-World + SAM)



Roboflow Uploading

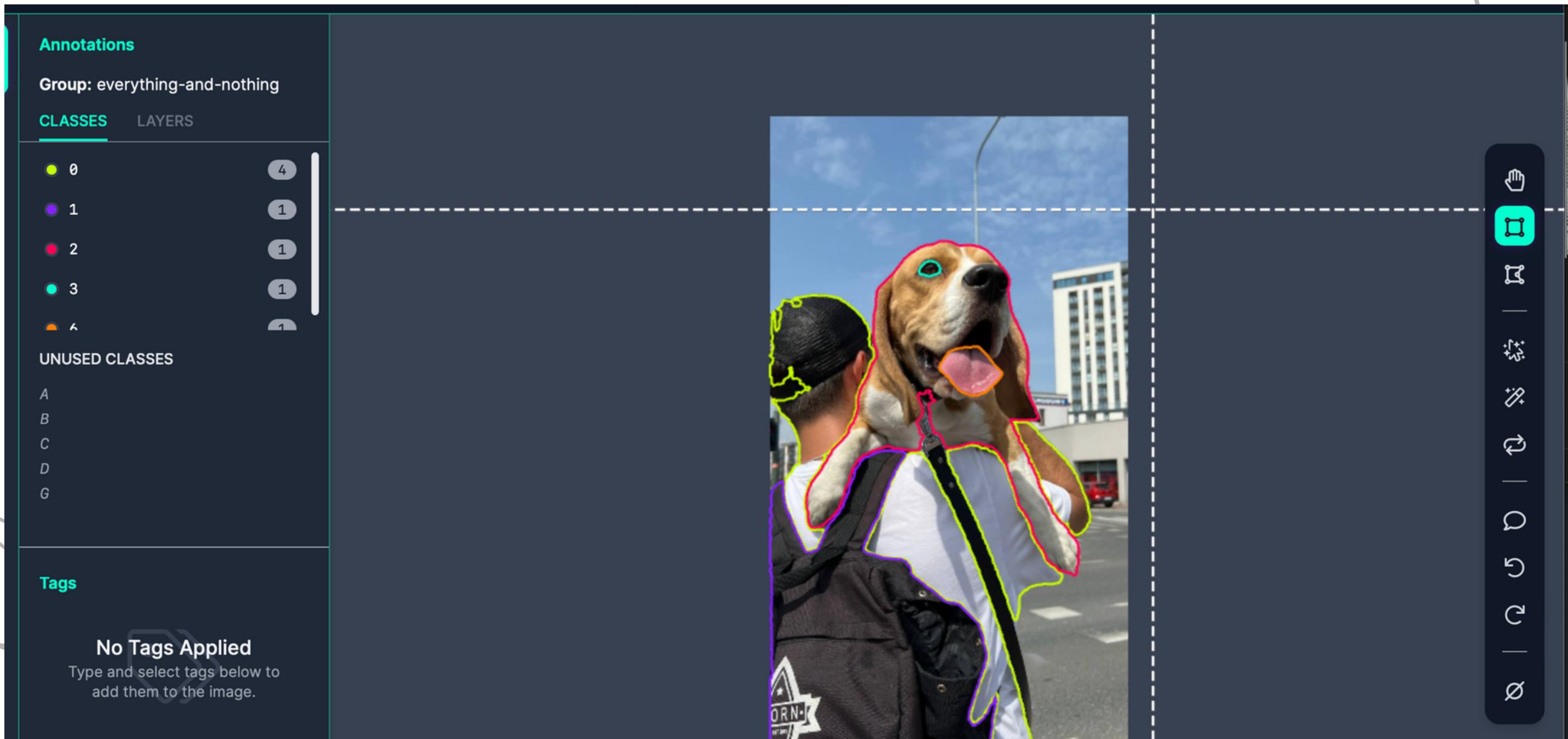


```
PROJECT_NAME = "doges"
PROJECT_DESCRIPTION = "everything-and-nothing"
BOX_TRESHOLD = 0.25
TEXT_TRESHOLD = 0.25

[13] from roboflow import Roboflow

workspace = Roboflow(api_key="grBnAXmaVyCZ0XlCtfQ7").workspace()
new_project = workspace.create_project(
    project_name=PROJECT_NAME,
    project_license="MIT",
    project_type="object-detection",
    annotation=PROJECT_DESCRIPTION)
new_project.upload(image_path="/content/dog.jpeg", annotation_path="/content/dog.txt", split="train", over
```

Roboflow Uploading



Summary

- **SAM only**
- **Yolo-World + SAM**

Year-end Project

