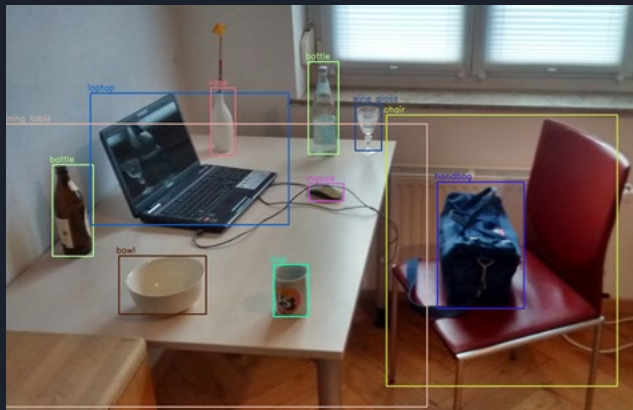


A decorative graphic on the left side of the slide consisting of two overlapping parallelograms. The front one is blue and the back one is a light green color. They are positioned diagonally, with the blue one partially covering the green one.

DETECTRON2

FacebookAI's framework

Object Detection



Keypoint Detection



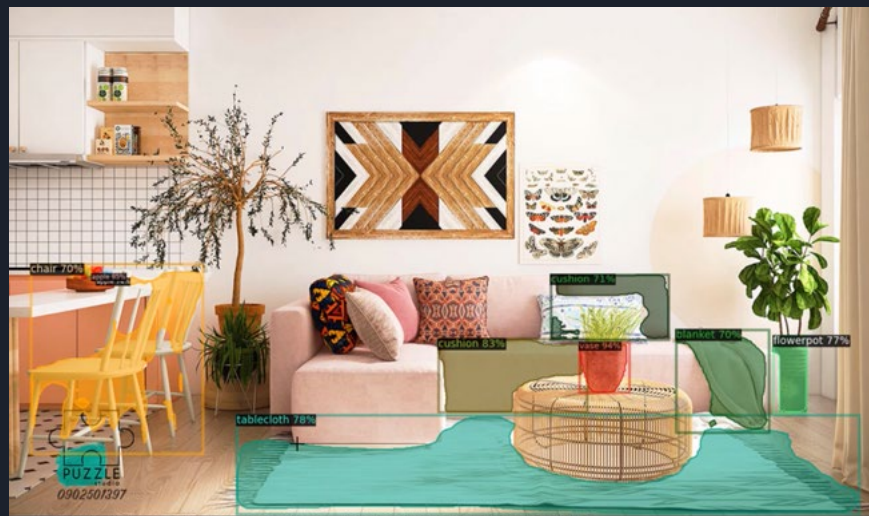
Semantic Segmentation



Panoptic Segmentation



LVIS Instance Segmentation (Large Vocabulary Instance Segmentation)



OBJECT DETECTION

```
class Detector:
    def __init__(self):
        self.cfg = get_cfg()

        # Load model config and pretrained model
        self.cfg.merge_from_file(model_zoo.get_config_file("COCO-Detection/faster_rcnn_R_101_FPN_3x.yaml"))
        self.cfg.MODEL.WEIGHTS = model_zoo.get_checkpoint_url("COCO-Detection/faster_rcnn_R_101_FPN_3x.yaml")

        self.cfg.MODEL.ROI_HEADS.SCORE_THRESH_TEST = 0.7
        self.cfg.MODEL.DEVICE = "cuda" #cpu or cuda

        self.predictor = DefaultPredictor(self.cfg)
```

```
def onImage(self, imagePath):
    image = cv2.imread(imagePath)
    predictions = self.predictor(image)

    viz = Visualizer(image[:, :, ::-1], metadata = MetadataCatalog.get(cfg.DATASETS.TRAIN[0]),
        instance_mode = ColorMode.IMAGE_BW)

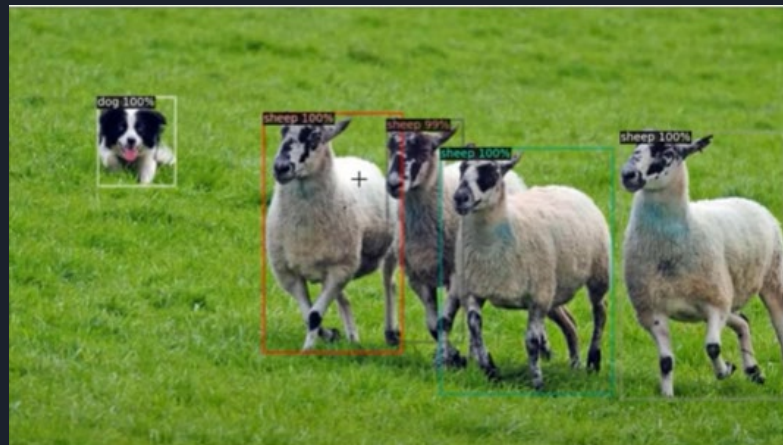
    output = viz.draw_instance_predictions(predictions["instances"].to("cpu"))

    cv2.imshow("Result", output.get_image()[:, :, ::-1])
    cv2.waitKey(0)
```

```
from Detector import *

detector = Detector()

detector.onImage("images/3.jpg")
```



MASKED RCNN

```
class Detector:
    def __init__(self, model_type = "CO"):
        self.cfg = get_cfg()

        # Load model config and pretrained model
        if model_type == "CO": # object detection
            self.cfg.merge_from_file(model_zoo.get_config_file("COCO-Detection/faster_rcnn_R_101_FPN_3x.yaml"))
            self.cfg.MODEL.WEIGHTS = model_zoo.get_checkpoint_url("COCO-Detection/faster_rcnn_R_101_FPN_3x.yaml")
        elif model_type == "IS": #instance segmentation
            self.cfg.merge_from_file(model_zoo.get_config_file("COCO-InstanceSegmentation/mask_rcnn_R_50_FPN_3x.yaml"))
            self.cfg.MODEL.WEIGHTS = model_zoo.get_checkpoint_url("COCO-InstanceSegmentation/mask_rcnn_R_50_FPN_3x.yaml")

        self.cfg.MODEL.ROI_HEADS.SCORE_THRESH_TEST = 0.7
        self.cfg.MODEL.DEVICE = "cuda" #cpu or cuda

        self.predictor = DefaultPredictor(self.cfg)
```

```
from Detector import *

detector = Detector(model_type="IS")

detector.onImage("images/3.jpg")
```



```
def onImage(self, imagePath):
    image = cv2.imread(imagePath)
    predictions = self.predictor(image)

    viz = Visualizer(image[:,:,:-1], metadata = MetadataCatalog.get(self.cfg.DATASETS.TRAIN[0]),
    instance_mode = ColorMode.SEGMENTATION)

    output = viz.draw_instance_predictions(segmentation)

    cv2.imshow("Result", output.get_image()[:,:,:-1])
    cv2.waitKey(0)
```



for more:

<https://www.youtube.com/watch?v=Pb3opEFP94U&t=569s>



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COMPLETE DETECTRON2 TUTORIAL | Instance Segmentation, Object Detection, Keypoints Detection and more

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This is a complete detectron2 tutorial for setting up detectron2, running it on images and videos. Detectron2 is FacebookAI's framework for object detection, instance segmentation, and keypoints...