

13	27/10/25	Architecture of pre-trained models
14	27/10/25	Pre-trained CNN model as a feature extractor using Transfer learning
15	27/10/25	Use model to Detect the objects.

will be running stable (to
100%) around

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at beginning different
and as it becomes better
and better you can see

27/10/25

Lab 15: Implement a Yolo model
to Detect Objects

Aim:

To implement the Yolo (You only
look one) object detection model
for identifying and locating multiple
objects in images.

Objectives:

- 1) To understand the Yolo architecture
and its real-time detection capability.
- 2) To perform object detection on
sample images or video frames.
- 3) To visualize detected objects with
bounding boxes.

Observation:

- 1) Yolo divides the image into grids
and predicts bounding boxes with class
probabilities.
- 2) The model detects multiple objects
in one forward pass, enabling real-time
performance.
- 3) Accuracy depends on dataset and
threshold settings.

was able to implement
YOLO model in Python

and was able to detect objects
from images. This was done by
detecting the predicted output
from the YOLO model.

Process

Process of detection of objects
from images will follow the steps:
image | context | IMG-20250523-WA0017.jpg;

640x480

and then we will use the
YOLO model to detect objects.
The YOLO model takes 3 persons
as input and outputs 3 persons.

Speed: 3 ms per frame, 7.3 ms per frame, 2.5 ms
postprocess per image & frame

Input size (1, 3, 640, 480)
and now we will predict objects to
be detected.

And output shows three objects
and their colors. Was found to be
red, blue, green.

So total no. objects found (3
persons) blue, green, red

Pseudocode:

- 1) Import YOLO model
- 2) Load pre-trained weights
- 3) Load input image or video
- 4) Perform detection using model.predict
- 5) Display bounding boxes and labels
- 6) Save or visualize the detected image.

Output:

Detected objects:

Person
Person
Person.

OK

Result:

Successfully implemented the YOLO
model to detect objects.

diab15.ipynb

File Edit View Insert Runtime Tools Help

Commands + Code + Test Run cell

Connect

```
! pip install ultralytics opencv-python
```

```
Collecting ultralytics
  Downloading ultralytics-8.3.221-py3-none-any.whl.metadata (37 kB)
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Downloaded ultralytics-thop-2.0.17-py3-none-any.whl (26 kB)
Installing collected packages: ultralytics-thop, ultralytics
Successfully installed ultralytics-8.3.221 ultralytics-thop-2.0.17
```

```
from ultralytics import YOLO
import cv2

# Step 1: Load a pre-trained YOLO model (v8 nano - fast and small)
model = YOLO('yolov8n.pt')

# Step 2: Load your image (you must have an image in the same folder)
img_path = 'content/2023-08-17-000000000000.jpg' # --- replace this with your image filename

# Step 3: Perform object detection
results = model(img_path)

# Step 4: Display detected objects
# Iterate through the results list and show each result
for r in results:
    r.show() # Opens a window with bounding boxes

# Step 5: Print detected class names in console
print("Detected Objects:")
```







