

LAB3: Building an Object Tracker

Computer Vision 2

Mory Moussou Kouklibaly Traore

AMMI/AIMS April 2021

1 Introduction

The purpose of this lab3 is build a simple object tracker. Our tracker will detect objects on all frames of a video using a Detectron2 pre-trained model and then will link the predictions from one frame to the next.

2 Part A: Detecting Objects in Frames

Here we download a small video clip of 41 frame, run the prediction and visualize the predictions from set of frames to make sure that things look correct.

Visualization



Figure 1: Prediction from set of frames to make sure that things look correct

3 Part B: Tracking Objects in Pairs of Frames

Here we implement a pairwise tracker for consecutive pairs of frames in the video clip and visualize the pairs of predictions. Here we use the intersection over union (IoU) to check the overlap between two frames. And if Finally, we assign the same color to predictions that have the same track id.

Visualization

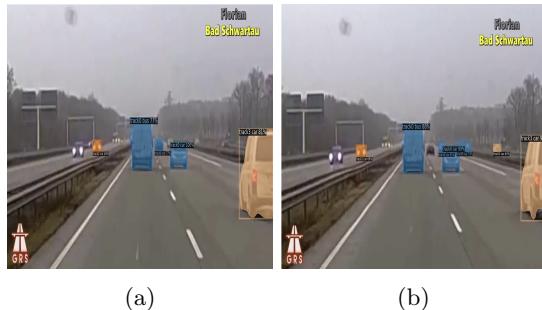


Figure 2: Tracking Objects in the pairs of Frames 39 and 40

Here we use he 39th to the 40th frame for testing our algorithm. And We observed that the tracking algorithm linked the objects to be tracked well for frame 39 and 40, and was also able to track new objects in the last image.

4 Part C: Tracking for extending pairwise tracking

Visualization

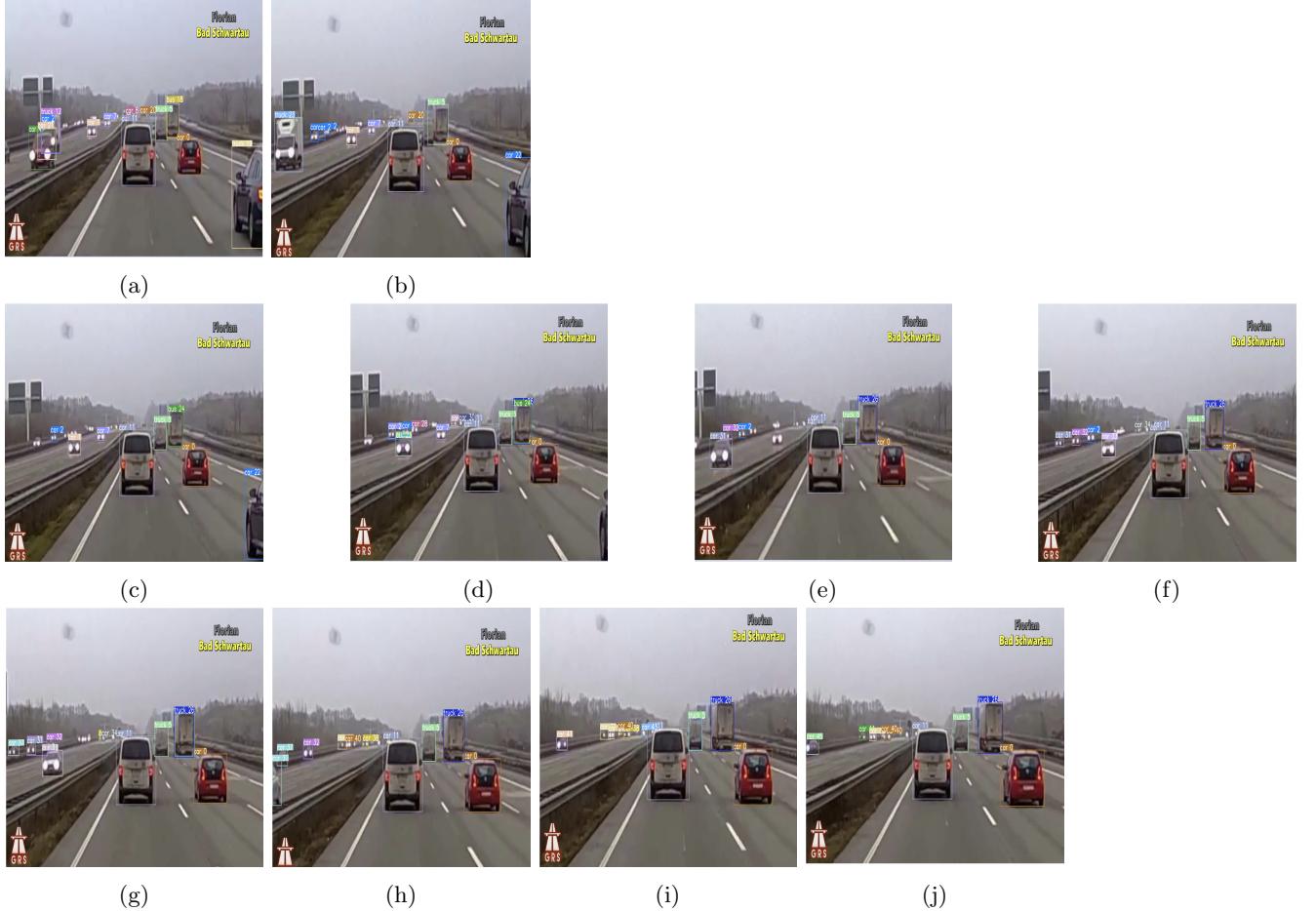


Figure 3: Visualizations of 10-frame track

As we can see the algorithm is tracking objects well from one fame to another. But we can observe that when the model assigned multiple predictions to the same object we want to track, the tracker will also assign different colors when the predicted class is different. The model also misclassified the same objects from one frame to another and predicted accurately others.

5 Conclusion

In this lab we learning how to build an abject tracker.

6 Link of my Notebook

https://colab.research.google.com/drive/1wCB_i34DjKV3kf6nYGo9y34kLRqDhY_V?usp=sharing