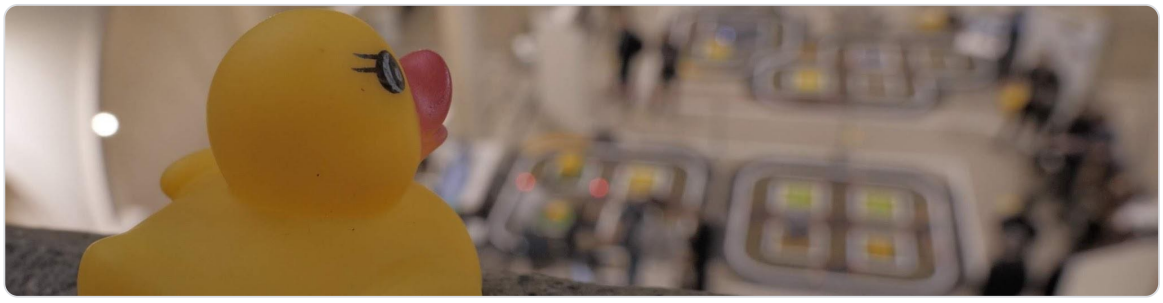

ETHZ AMoD 2020 Homework 8 (Object Detection) answer sheet

You can find the details of this exercise here:
https://docs.duckietown.org/daffy/duckietown-learning-robotics/out/lra_object_detection.html

In this exercise, you will train an object detection neural network. First, you will create your own training dataset with the Duckietown simulator. By using the segmentation maps that it outputs you will be able to label your dataset automatically. Then, you will adapt a pre-trained model to the task of detecting various classes of objects in the simulator. You will be graded on the quality of the dataset you made and the performance of your neural network model.

If you ran into some serious technical issues, you can leave some parts empty. Please explain why in the field at the end. "I didn't have time" or "I was lazy" are not justifiable explanations.

Push all your code to GitHub. For the repository URLs asked, make sure that your repository is private. Add the GitHub username "duckquackermann" as a collaborator to the repository.

The DockerHub image should be compliant with the evaluation procedure described in the exercise. Make sure that it works on a CPU-only machine too by evaluating with the eval-cpu command.

Upload your dataset to this Dropbox link:
https://www.dropbox.com/request/tjfoabFeuRdfjO3SZpQ8

Deadline: Monday, 7 December at 13:59 am CET.

*必填

电子邮件地址 *

xisong@student.ethz.ch

Your name *

Your name

XIAOAO SONG

What is the difference between image classification and object detection?

Image classification involves assigning single or multiple class labels to an image. The main goal of this technique is to accurately identify the features in an image. However, we won't know the location of the classified objects inside of the image. In object detection, we need to do something more. Not only classifying the objects, we also need to identify the location of the object instances in the given image.

What is image segmentation?

Image segmentation is a technique of dividing a digital image into multiple segments so as to simplify an image. This simplification helps in a study of images for further analysis. Image segmentation will find a label for each pixel - answering "what" and "where" questions. Image segmentation is typically used to locate objects and boundaries (lines, curves, etc.) in images. More precisely, image segmentation is the process of assigning a label to every pixel in an image such that pixels with the same label share certain characteristics.

A link to the GitHub repository containing all the code for your solution

Remember to make the link private and add as a collaborator the GitHub username 'duckquackermann'.

https://github.com/lineojcd/dt_obj_detection

The Dockerhub image with your solution

lineojcd/dt_obj_detection:latest

Upload an archive with the first 100 samples of your training dataset to Dropbox

- [x] Name format: amod20-hw8-training-dataset-<your-full-name>.

Any special instructions on how to run your training script?

This should include the command to run it and any other information you think is necessary

git clone https://github.com/lineojcd/dt_obj_detection.git
cd dt_obj_detection/model
python3 train.py

Feedback

Comments, questions, doubts

Teammate: Junting Chen
For all the instructions of how to run the code and other instructions, please do check on my git for newest updation as I might change it a bit later to make it more readable and user-friendly.