Initial Setup with Docker
Lab-session 0

Computer Vision and Image Processing

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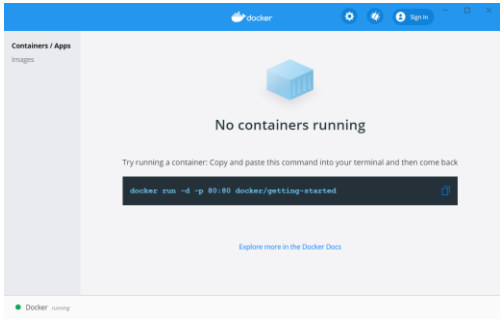
Step 1: Installing and running Docker

What is Docker? Docker is a tool designed to make it easier to create, deploy, and run applications by using containers.
More details at: https://www.docker.com/

Install and Run Docker on Windows

1. Follow the instruction at the following link: https://docs.docker.com/docker-for-windows/install/
2. Run the Docker Desktop application



Install Docker on Ubuntu

1. Follow the instruction at the following link. **Installation from repository** is recommended. https://docs.docker.com/engine/install/ubuntu/

Step 2: Build and Run Docker Container

1. Download the ***Dockerfile*** configuration file
2. Open a terminal and navigate to the directory containing the configuration file
3. Execute the following command to build the docker container:

   docker build . -t cvlab

4. Download the Lab Session .zip file and unzip it. Remember the path to the **unzipped folder path:**

   In Ubuntu:

   PATH_TO_EXERCISES="/path/to/exercise"

   For instance *PATH_TO_EXERCISES="/home/pippo/Downloads/LabSession1"*

   In Windows:

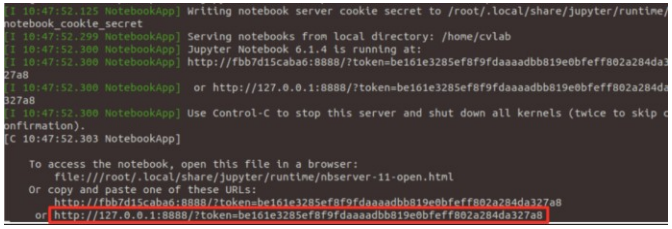
   $PATH_TO_EXERCISES="/path/to/exercise"

   For instance *$PATH_TO_EXERCISES="C:\Users\pippo\Downloads\LabSession1"*

5. Execute the following command to run docker container

   docker run -v ${PATH_TO_EXERCISES}:/home/cvlab -p 8888:8888 cvlab:latest

6. Click or copy link highlighted in the following picture to open the notebook:



Stop containers and delete images

If you want to stop all the running containers and delete the images (for instance to run again step 5), you can use the following command:

docker stop $(docker ps -aq)

[OPTIONAL] Connect your webcam to Docker Container (Only Ubuntu)

Docker cannot recognize devices outside from the container. We must explicitly show the device when running the container.

In Ubuntu is quite straightforward. At step 5 of the previous slide, when running the docker container, we run the following command instead:

```
docker run -v ${PATH_TO_EXERCISES}:/home/cvlab -p 8888:8888 --device=/dev/video0:/dev/video0 -it cvlab:latest
```

In Windows we recommend the following guide:

https://docs.microsoft.com/en-us/virtualization/windowscontainers/deploy-containers/hardware-devices-in-containers