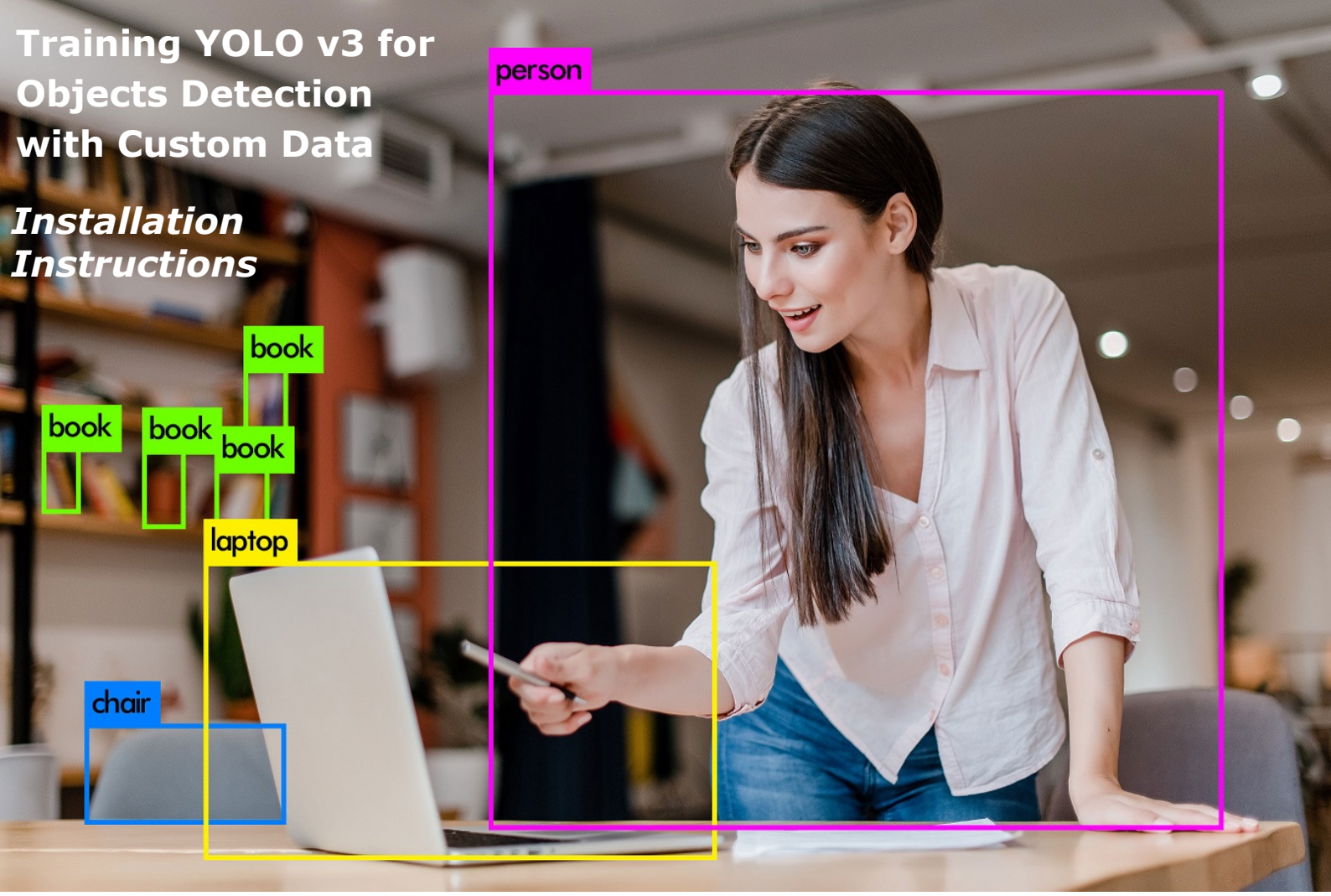
Training YOLO v3 for Objects Detection with Custom Data

Installation Instructions



Installing Miniconda, Python, OpenCV, PyCharm

Let's consider few examples on how to install needed programs. If you encounter any issues with setting up the programs, let's discuss them in *Question & Answer board*. Together with course-mates we will find solution.

Python v3

We will use **conda** (to install *Python v3*), which is an open source package and environment management system that runs on **Linux**, **Windows** and **macOS**. A free minimal installer for *conda* is **Miniconda**, that includes only *conda* itself, *Python*, and a small number of other useful packages.

After **Miniconda is installed**, you can **use conda** to install any other packages and create environments. Example on how to create environment with *Python v3.6*:

```
conda create -n name-of-the-environment python=3.6
```

Example on how to list all existing environments:

```
conda env list
```

Example on how to activate environment:

```
conda activate name-of-the-environment
```

Linux

Instructions on how to install **Miniconda** on **Linux**:

1. Download the installer of *Miniconda* from official website here (choose the one for *Linux* and *Python v3*)
2. Open *Terminal* window and change the folder to one you downloaded the file in, for example: `cd Downloads`
3. Run installation with the name of the file you downloaded:
   `bash name-of-the-file`
   It should look like this or quite similar:
   `bash Miniconda3-latest-Linux-x86_64.sh`
4. Follow the prompts on the installer screens
5. To make the changes take effect, close and then re-open your *Terminal* window
6. Verify installation by running in *Terminal* window following command:
   `conda list`

Windows

Instructions on how to install **Miniconda** on **Windows**:

1. Download the installer of *Miniconda* from official website here (choose the one for *Windows* and *Python v3*)
2. Open *Explorer* and find the installation file you downloaded
3. Run installation file by double-click on it. The file should look like this or quite similar:
   `Miniconda3-latest-Windows-x86_64.exe`
4. Follow the prompts on the installer screens
5. After installation, open the *Anaconda Prompt* from the *Start* menu
6. Verify installation by running in *Anaconda Prompt* following command:
   `conda list`

MacOS

Instructions on how to install **Miniconda** on **MacOS**:

1. Download the installer of *Miniconda* from official website here (choose the one for *MacOS* and *Python v3*)
2. Open *Terminal* window and change the folder to one you downloaded the file in, for example: `cd Downloads`
3. Run installation with the name of the file you downloaded:
   `bash name-of-the-file`
   It should look like this or quite similar:
   `bash Miniconda3-latest-MacOSX-x86_64.sh`
4. Follow the prompts on the installer screens
5. To make the changes take effect, close and then re-open your *Terminal* window
6. Verify installation by running in *Terminal* window following command:
   `conda list`

OpenCV

There are few the simplest ways how to install **OpenCV**:

- by using **conda**
- by using **pip** for *Python v3*

With first option (*conda*), it's needed to have *conda* been installed and to use one of the following commands:

- `conda install -c conda-forge opencv`
- `conda install -c conda-forge/label/gcc7 opencv`
- `conda install -c conda-forge/label/broken opencv`
- `conda install -c conda-forge/label/cf201901 opencv`

With second option (*pip*), use one of the following commands:

- `pip install opencv-python`
- `pip install opencv-contrib-python`

  or:
- `pip3 install opencv-python`
- `pip3 install opencv-contrib-python`

Pay attention! Not all versions of *Python* are compatible with different *OpenCV* distributives. Combination that was installed for this course is as following:

- `conda create -n name-of-the-environment python=3.6`
- `conda activate name-of-the-environment`
- `pip install opencv-python`

OpenCV will be installed in the chosen environment. To check **if OpenCV was installed**, run *Python* in any form (e.g., just activate your environment created with *conda* and type *python*) and use following two lines of code:

- `import cv2`
- `print(cv2.__version__)`

As a result, the version of installed *OpenCV* has to be shown, like this: *4.1.0*

Also, you can verify installation by running only one line of the code in *Terminal* (or *Anaconda Prompt*), but don't forget to activate your environment:

```
python -c "import cv2; print(cv2.__version__)"
```

PyCharm

Instructions on how to install free, open-source, pure *Python development IDE*, community version of *Pycharm*.

Linux

Instructions on how to install **PyCharm** on **Linux**:

1. Download file with archive from official website here (choose the button for *Community* version)
2. Copy the file to the desired installation location (make sure you have *rw* permissions for that directory)
3. Unpack the file using the following command:
   `tar -xzf name-of-the-archive`
   It should look like this or quite similar:
   `tar -xzf pycharm-community-2019.2.4.tar.gz`
4. Remove the file with archive to save disk space (optional)
5. Find file with name `pycharm` with extension `.sh` in the *bin* subdirectory and run it using the following command:
   `./pycharm`
   Or you can use full path (yours should be different) as shown below:
   `Programs/pycharm/bin/pycharm.sh`

Windows

Instructions on how to install **PyCharm** on **Windows**:

1. Download the installer of *PyCharm* from official website here (choose the button for *Community* version)
2. Open *Explorer* and find the installation file you downloaded
3. Run installation file by double-click on it. The file should look like this or quite similar:
   `pycharm-community-2019.2.4.exe`
4. Follow the prompts on the installer screens

MacOS

Instructions on how to install **PyCharm** on **MacOS**:

1. Download *macOS Disk Image* file from official website here (choose the button for *Community* version)
2. Mount it as another disk in your system
3. Copy *PyCharm* to your *Applications* folder

Useful links

You can check out these additional links with other useful instructions for further reading:

[1] Conda Glossary

[2] conda-forge/opencv

[3] opencv-contrib-python

[4] pycharm/basic-tutorials