



Create a custom object detection using YOLOv8

The following instructions will help you install YOLOv8 through ultralytics. Before that, the instructions will explain how to create a virtual environment, install python and ipykernel to it and connect it to jupyter notebook.

Setting up your environment

Create a new folder. In the folder should be your images as well as the jupyter notebook provided in our GitHub repository. Using your command line interface or PowerShell, create a virtual environment inside the new folder. Change the name to your desired name:

Next, you should find a folder with the name of your virtual environment in the chosen path. Activate the virtual environment with the second command. If you see the name of the environment in brackets, the creation and activation was successful.

```
PS C:\Users\NGutheil> python -m venv name
PS C:\Users\NGutheil> .\name\scripts\activate
(name) PS C:\Users\NGutheil> |
```

Next, install pip to your virtual environment:

```
(name) PS C:\Users\NGutheil> python -m pip install --upgrade pip
```

Next, install ipykernel to the environment using *pip install ipykernel*.

Next, add your virtual environment to your Python kernel and install jupyter to the virtual environment:

```
(name) PS C:\Users\NGutheil> python -m ipykernel install --name=name
(name) PS C:\Users\NGutheil> pip install jupyter
```

After that, by entering **jupyter notebook**, you should be able to open the folder including the notebook in your browser.

If you encounter any problems with this installation, please contact s3g@fim-rc.de for help. Please note that this instruction is voluntary and you might set up the environment as well as the jupyter notebook on your own.

Developing the custom object detection

After having set up your environment according to our instruction, please follow the instructions in the jupyter notebook.

Your goal for the first week is to finish the notebook and have a working object detection for scratches on the back of the car.