Making it work

Pedestron requires specific, older versions of some libraries:
- PyTorch: 1.4.0
- mmcv: 0.2.14

Prerequisites

Python3

Set Python3 to default, see here:

```
$ sudo update-alternatives --install /usr/bin/python python /usr/bin/python2 1
$ sudo update-alternatives --install /usr/bin/python python /usr/bin/python3 2
$ python --version
Python 3.8.5
```

PyTorch

Installing PyTorch as per documentation here. As Pedestron requires PyTorch 1.4.0 or lower, one has to install that specific version and can't go with the latest one. Specific version PyThorch installation is described here.

```
$ curl -O https://repo.anaconda.com/miniconda/Miniconda3-latest-Linux-x86_64.sh
$ sh Miniconda3-latest-Linux-x86_64.sh
# either install the shell hook, or run 'conda init' each time
# install PyTorch 1.4.0 with pip:
$ pip install torch==1.4.0 torchvision==0.5.0
# verify:
$ python -c "import torch; print(torch.__version__)"
1.4.0
$ python -c "import torch; print(torch.cuda.is_available())"
True
```

Note: the 'pip' command from above has to be the one that comes from miniconda / anaconda, not some system-installed version, e.g. from the python3-pip package or others.

CUDA

Verify CUDA version:

```
$ nvcc --version
nvcc: NVIDIA (R) Cuda compiler driver
Copyright (c) 2005-2019 NVIDIA Corporation
```

```
Built on Sun_Jul_28_19:07:16_PDT_2019
Cuda compilation tools, release 10.1, V10.1.243
```

GCC

Verify GCC version:

```
$ gcc --version
gcc (Ubuntu 9.3.0-17ubuntu1~20.04) 9.3.0
Copyright (C) 2019 Free Software Foundation, Inc.
This is free software; see the source for copying conditions.  There is NO
warranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.

$ g++ --version
g++ (Ubuntu 9.3.0-17ubuntu1~20.04) 9.3.0
Copyright (C) 2019 Free Software Foundation, Inc.
This is free software; see the source for copying conditions.  There is NO
warranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.
```

MMCV

See mmcv installation instructions here. Pedestrian requires a rather old version, 0.2.14 of mmcv. Install by executing:

```
pip install mmcv==0.2.14
```

Also note that the package 'mmcv' is needed, while more recently it is called 'mmcv-full' - the latter doesn't work with Pedestron.

NCCL

Official installation instructions are here.

```
# Ubuntu 20.04 on x86_64:
sudo apt-key adv --fetch-keys
https://developer.download.nvidia.com/compute/cuda/repos/ubuntu2004/x86_64/7fa2
af80.pub
sudo add-apt-repository "deb
https://developer.download.nvidia.com/compute/cuda/repos/ubuntu2004/x86_64/ /"
sudo apt update
sudo apt install libnccl2 libnccl-dev
```

scipy

Install by:

```
pip install scipy
```

Pedestron Installation

Assuming MMDetection was installed as described above, an open-mmlab conda environment has already been created. Thus:

```
conda activate open-mmlab
conda install cython
```

Clone the Pedestron code:

```
git clone https://github.com/hasanirtiza/Pedestron.git
cd Pedestron
```

Install Pedestron:

```
pip install -v -e .
```

Run a demo on pretrained models

Get a pretrained model from [here](#), for example the EuroCity Persons, filename epoch_147.pth.stu.

Set up directories & files:

```
cd Pedestron
mkdir models_pretrained
mkdir result_demo
cp .../epoch_147.pth.stu models_pretrained
```

Run the model on the sample images files in the Pedestron/demo directory:

```
python tools/demo.py configs/elephant/cityperson/cascade_hrnet.py
./models_pretrained/epoch_147.pth.stu demo/ result_demo/
```