

# How To install caffe for CPU

1. Install ubuntu 16.04 (wsl)
2. Update` sudo apt-get update
3. Install gcc` sudo apt-get install gcc
4. Remove all existing pythons` sudo apt remove python3
5. Install python3.5.2 with these steps:
  - Dependencies:
    - sudo apt-get install build-essential tk-dev
    - sudo apt-get install libncurses5-dev libncursesw5-dev libreadline6-dev
    - sudo apt-get install libdb5.3-dev libgdbm-dev libsqlite3-dev libssl-dev
    - sudo apt-get install libbz2-dev libexpat1-dev liblzma-dev zlib1g-dev
  - Downloading python
    - wget https://www.python.org/ftp/python/3.5.2/Python-3.5.2.tgz
    - tar zxvf Python-3.5.2.tgz
    - cd Python-3.5.2
    - ./configure --prefix=/usr/local/opt/python-3.5.2 --enable-shared
    - make -j16
    - sudo make install
  - Make the compiled binaries globally available.
    - sudo ln -s /usr/local/opt/python-3.5.2/bin/pydoc3.5 /usr/bin/pydoc3.5
    - sudo ln -s /usr/local/opt/python-3.5.2/bin/python3.5 /usr/bin/python3.5
    - sudo ln -s /usr/local/opt/python-3.5.2/bin/python3.5m /usr/bin/python3.5m
    - sudo ln -s /usr/local/opt/python-3.5.2/bin/pyvenv-3.5 /usr/bin/pyvenv-3.5
    - sudo ln -s /usr/local/opt/python-3.5.2/bin/pip3.5 /usr/bin/pip3.5
    - sudo echo /usr/local/opt/python-3.5.2/lib > /tmp/python3.5.2.conf
    - sudo mv /tmp/python3.5.2.conf /etc/ld.so.conf.d/
    - sudo ldconfig
6. Getting the repositories
  - cd \$(HOME) /

- `sudo rm -rf Python3.5.2/`
- `sudo rm -rf Python 3.5.2.tgz`
- `git clone https://github.com/riblidezso/frcnn_cad.git`
- `cd frcnn_cad/`
- `git clone https://github.com/rbgirshick/py-faster-rcnn`
- `git checkout faster-rcnn`
- `cd py-faster-rcnn`
- `rmdir caffe-fast-rcnn/`
- `git clone https://github.com/rbgirshick/caffe-fast-rcnn`
- `cd caffe-fast-rcnn/`
- `git checkout faster-rcnn`

## 7. Caffe Part

### ○ Get dependencies

- `pip3.5 install opencv-python==3.4.0.12 --user`
- `sudo apt-get install libatlas-base-dev`
- `sudo apt-get install libboost-all-dev`
- `sudo pip3.5 install protobuf==3.3.0`
- `sudo apt-get install libprotobuf-dev libleveldb-dev  
libsndpp-dev libopencv-dev libhdf5-serial-dev  
protobuf-compiler`
- `sudo apt-get install the python3.5-dev`
- `sudo apt-get install libgflags-dev libgoogle-glog-dev  
liblmdb-dev`
- `sudo apt-get install python3.5-numpy`

## Makefile and Makefile.config:

- Go to the `caffe-fast-rcnn/` folder and follow these steps

You can either copy and replace Makefile and Makefile.config files with these: [Makefile](#), [Makefile.config](#) , or follow the below mentioned steps. (The result will be the same, if everything is done correctly)

- In Makefile Change this line **PYTHON\_LIBRARIES ?= boost\_python python2.7** to **PYTHON\_LIBRARIES := boost\_python-py35 python3.5m**
  - Change Makefile.config in the following way (If the config file does not exist create one)
- ```
## Refer to http://caffe.berkeleyvision.org/installation.html
```
- `make all -j$(nproc)`
  - `make test -j$(nproc)`

- `make runtest -j$(nproc)`
- `make pycaffe -j$(nproc)`
- Add this to the last line in the `.bashrc` file of the ubuntu

```
export PYTHONPATH="/home/yourUsername/frcnn_cad/py-faster-rcnn/caffe-fast-rcnn/python":$PYTHONPATH
export PYTHONPATH="/home/yourUsername/frcnn_cad/py-faster-rcnn/lib":$PYTHONPATH
export PYTHONPATH="/home/yourUsername/frcnn_cad/py-faster-rcnn/lib/rpn":$PYTHONPATH
```

- `pip3.5 install grpcio --user`
- Change in `proposal_layer.py` line 26 `self.param_str` to `self.param_str_`
- `pip3.5 install Cython`

**py-faster-rcnn/lib**, this folder contains many problematic scripts, to improve them you can either copy and replace it with [this folder](#) or follow the below mentioned steps. (The result will be the same if everything is done correctly)

- In `py-faster-rcnn/lib/Makefile` change `python setup.py build_ext --inplace` to `python3.5 setup.py build_ext --inplace`
- Change `py-faster-rcnn/lib/setup.py` to [this](#) (All gpu parts are commented)
- In `nms_wrapper.py` change all the prints according to the syntax of python 3.5, also find `xrange` in a for loop and refactor it to `range` In `generate_anchors.py` change print functions too (add parentheses)
- Write these commands in the terminal
 

```
cd /home/yourUsername/frcnn_cad/py-faster-rcnn/lib
make
```
- `sudo apt-get install python3-tk`
- There are more small changes needed in files. Fix other syntax errors in files such as `prints`, `xranges`, `iteritem()` to `item()` ...

That's all, now you can import `caffe` into python codes and run them.