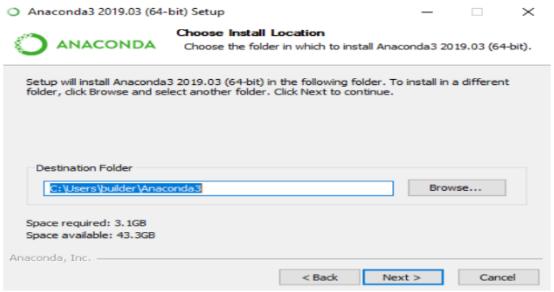
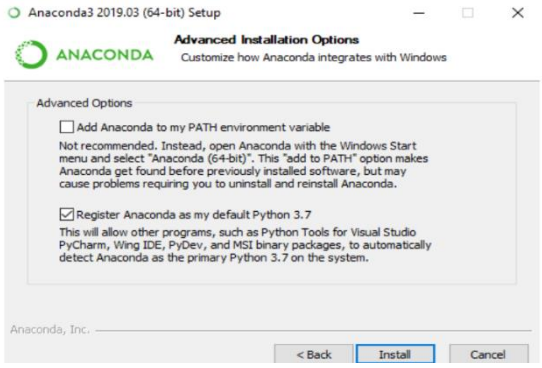
INSTALLATION OF IMAGE PROCESSING LIBRARIES IN PYTHON

I. Anaconda Installation

To Install Anaconda:

1. Visit https://www.anaconda.com/distribution/#windows
2. Select Python 3.7 Version and download will start
3. After download: Double click the installer to launch.
4. Click Next.
5. Read the licensing terms and click “I Agree”.
6. Select an install for “Just Me” unless you’re installing for all users (which requires Windows Administrator privileges) and click Next.
7. Select a destination folder to install Anaconda and click the Next button.

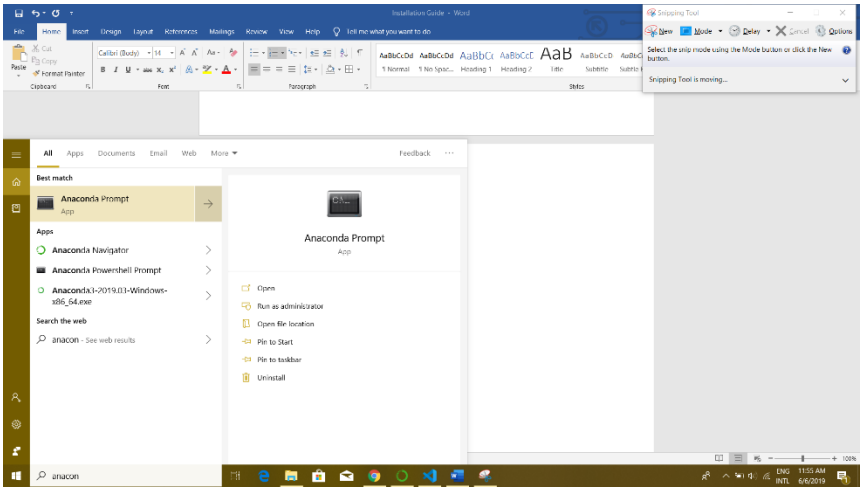




8. **Choose whether to register Anaconda as your default Python. Unless you plan on installing and running multiple versions of Anaconda, or multiple versions of Python, accept the default and leave this box checked.**
9. Click the Install button. If you want to watch the packages Anaconda is installing, click Show Details.
10. Click the Next button.

II. Installation of OpenCV

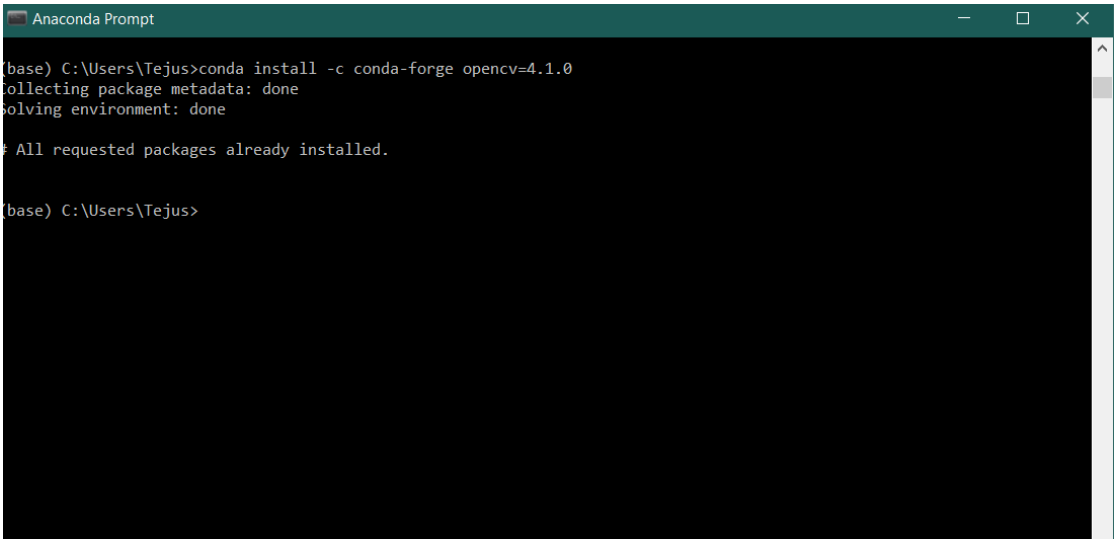
1. Open Anaconda Prompt



2. Type in the following command:
   conda install -c conda-forge opencv

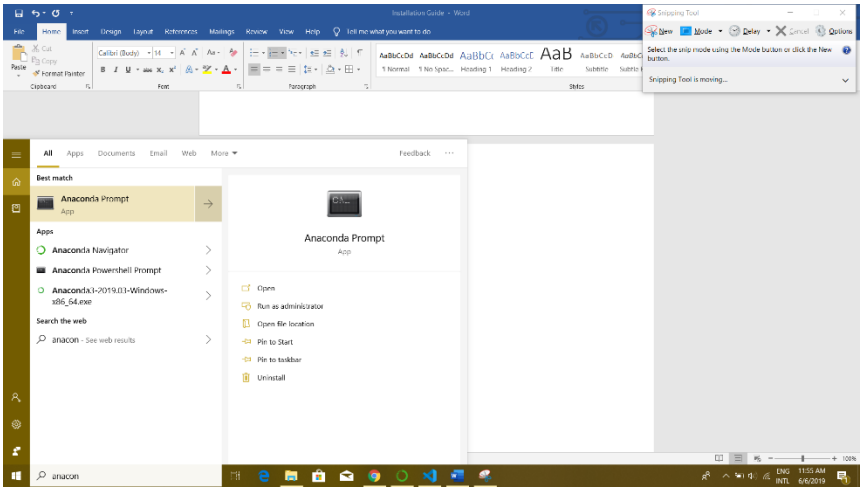
   To install a specific version of opencv:
   conda install -c conda-forge opencv={version}

   Since we will work on opencv 4.1.0, type in:
   conda install -c conda-forge opencv=4.1.0



III. Installation of TensorFlow

1. Open Anaconda Prompt



2. Type in the following command:
   pip install --upgrade tensorflow

3. To check if installation is correct, open Jupyter notebook:
   3.1 Type in ‘’import tensorflow as tf”
   3.2 If this works, installation is correct

```
In [10]: import tensorflow as tf
```

IV. Installation of Keras

1. Open Anaconda Prompt
2. Type in the following command:
   pip install keras

```
(base) C:\Users\Tejus>pip install keras
Collecting keras
  Using cached https://files.pythonhosted.org/packages/5e/10/aa32dad071ce52b5502266b5c659451cfd6ffcbf14e6c8c4f16c0ff5aaab/Keras-
2.2.4-py2.py3-none-any.whl
Requirement already satisfied: keras-applications>=1.0.6 in e:\anaconda\lib\site-packages (from keras) (1.0.8)
Requirement already satisfied: keras-preprocessing>=1.0.5 in e:\anaconda\lib\site-packages (from keras) (1.1.0)
Requirement already satisfied: h5py in e:\anaconda\lib\site-packages (from keras) (2.9.0)
Requirement already satisfied: scipy>=0.14 in e:\anaconda\lib\site-packages (from keras) (1.2.1)
Requirement already satisfied: numpy>=1.9.1 in e:\anaconda\lib\site-packages (from keras) (1.16.2)
Requirement already satisfied: pyyaml in e:\anaconda\lib\site-packages (from keras) (5.1)
Requirement already satisfied: six>=1.9.0 in e:\anaconda\lib\site-packages (from keras) (1.12.0)
Installing collected packages: keras
Successfully installed keras-2.2.4
```

Video Guide to Installation

- OpenCV : https://www.youtube.com/watch?v=vePJ19ZesZk
- Tensorflow and Keras: https://www.youtube.com/watch?v=CcKf-iZ8umk

Important Note

NEVER install Keras before tensorflow.

It will crash your Anaconda.

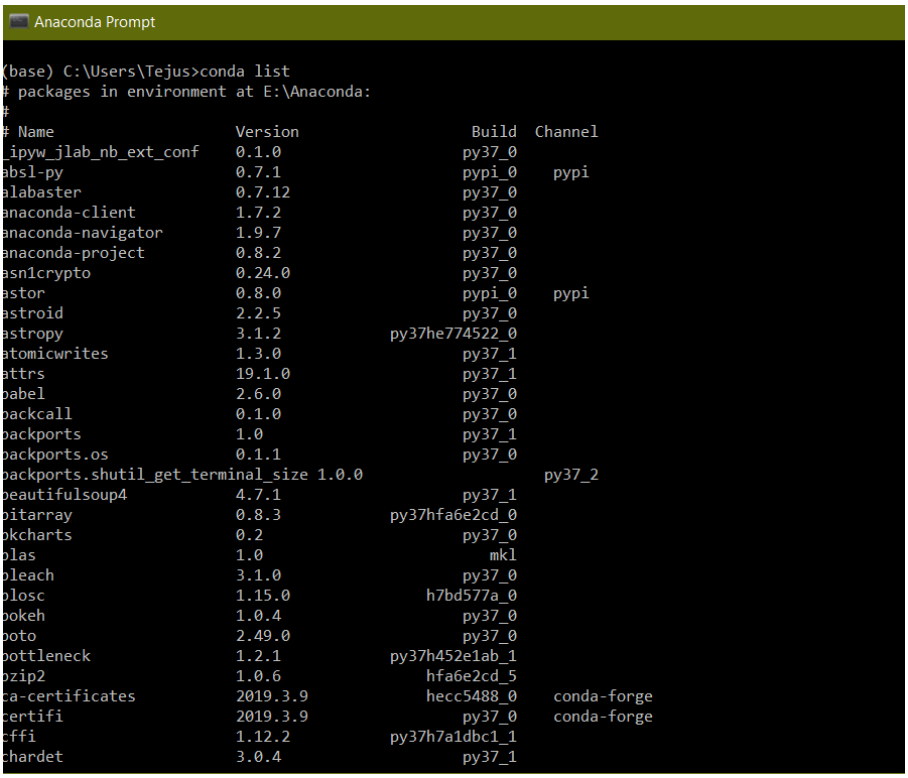
Always install tensorflow first and then keras as done in the installation video.

Versions

- Go to Anaconda prompt and type in:

  “conda list”

- From the list check for the following versions:
  - Keras: 2.2.4
  - OpenCV: 4.1.0
  - Tensorflow: 1.13.1



If an older version is installed on the system:

- Go to Anaconda prompt and type in:

  “conda update --all”

Possible Errors and Fixes

- **NEVER** install Keras before tensorflow.

  It will crash your Anaconda.

  If Anaconda prompt crash and doesn't start, Uninstall and Reinstall Anaconda.

  Always install tensorflow first and then keras as done in the installation video.

- python tensorflow import dll load failed:

  https://stackoverflow.com/questions/49113497/python-tensorflow-import-dll-load-failed

- Reference this issue: **https://github.com/tensorflow/tensorflow/issues/17386**
  - Re-installed by this tensorflow-1.6.0-cp36-cp36m-win_amd64.whl: **https://github.com/fo40225/tensorflow-windows-wheel/tree/master/1.6.0/py36/CPU/sse2**

- If **"ImportError: DLL load failed" error for OpenCV**:

  - Manually download opencv from **https://opencv.org/releases/**
  - Go to anaconda prompt and type in **conda update --all**
  - Extract your downloaded OpenCV .rar file anywhere you like and open the extracted opencv folder.
  - At the same time, open the folder where you have installed Anaconda
  - In Anaconda folder:
    - Go to **Lib>site-packages**
  - In Opencv folder:
    - Go to build>python>cv2>python-3.7
    - You will find the file **'cv2.cp37-win_amd64'**
    - Copy this file and paste it into the **Lib>site-packages folder inside Anaconda**
  - Rename **'cv2.cp37-win_amd64' to cv2** in the site-packages folder

- Now again in Opencv folder:
  - Go to **build>x64>v15>bin**
  - Copy all files of **.dll extension** from that folder and paste it to **Lib>site-packages folder inside Anaconda**
  - Now in Opencv folder go to **build>bin**
  - You will find 2 .dll files in that folder. Copy them and paste them to **Lib>site-packages folder inside Anaconda** as done in previous step. Click replace to replace the one same dll file.
- Now in Anaconda>Lib>site-packages folder:
  - Select the 4 .dll files you just copied to the folder.
  - Copy these 4 files and now go to **C drive>Windows>System32** folder.
  - Paste the .dll files there. Agree to all the pop-ups.

Now open your Jupyter notebook and type in

Import cv2

If the command executes, Cv2 is now correctly installed on your system.

Video Reference: https://www.youtube.com/watch?v=vePJ19ZesZk