

## PC-side OpenCV environment setup

### 1. PC-side uses anaconda to download python

In this project, we first need to download anaconda, which is an open source Python distribution, a virtual environment tool.

It not only possess many built-in python packages, including numpy, pandas, etc. It also provides several very important applications for users, including Anaconda Navigator, toolkits, Jupyter notebook, and the spyder we have used. Similarly, we will use the conda provided by anaconda for us to download OpenCV on the PC-side.

#### Download anaconda:

We need to enter: <https://www.anaconda.com/download/> in the browser address bar to download the installation package.

In the page, choose the operating system according to your actual situation. We will use the python3.7 version. Windows system users should choose whether they are 32-bit systems or 64-bit systems. As shown in the figure1-1 below.

After the installation package is downloaded, open it and select the appropriate location to complete the installation.

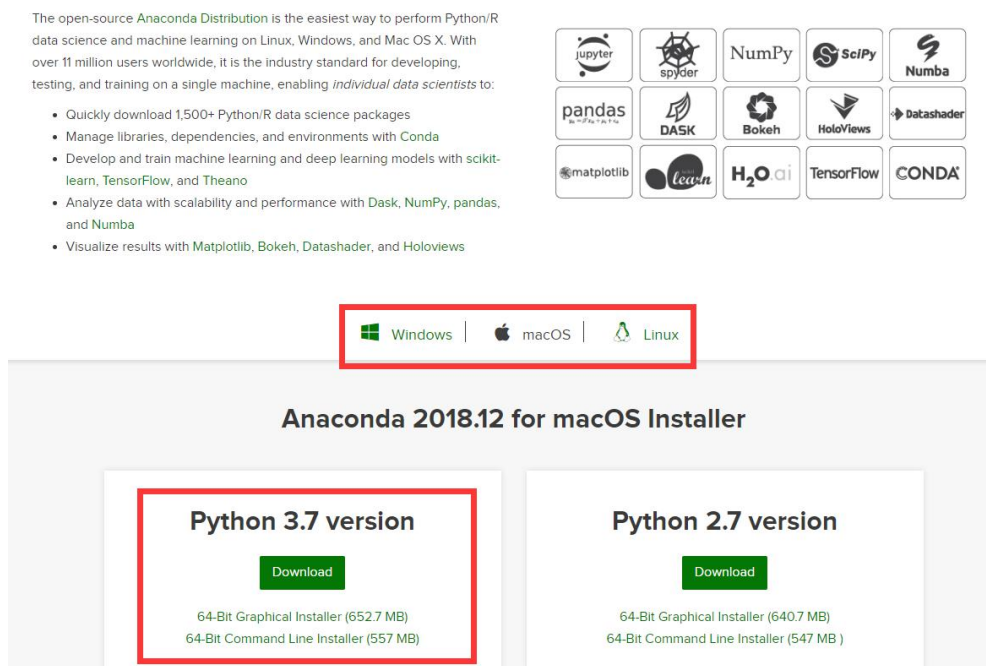


Figure1-1

After the download is complete, you can see Anaconda in the start menu of Window or in the launch pad of Mac. Click on “Anaconda Navigator” to see the graphical window and the various applications. As shown in the figure1-2 below.

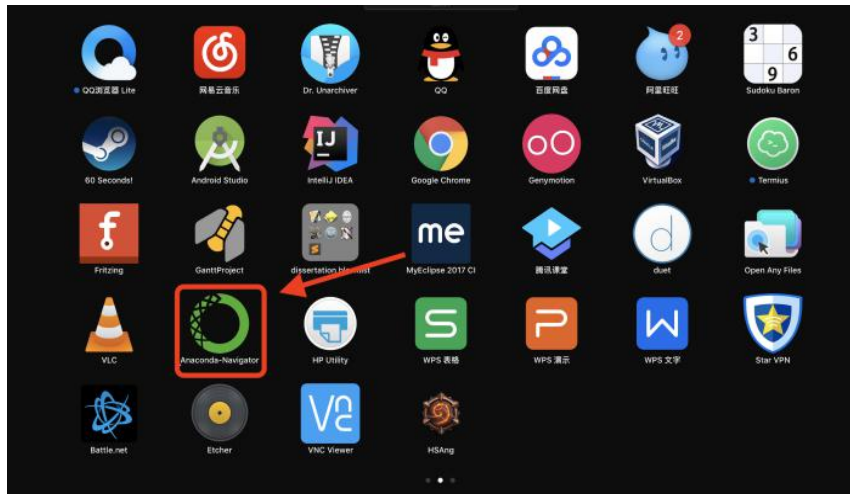


Figure1-2-1

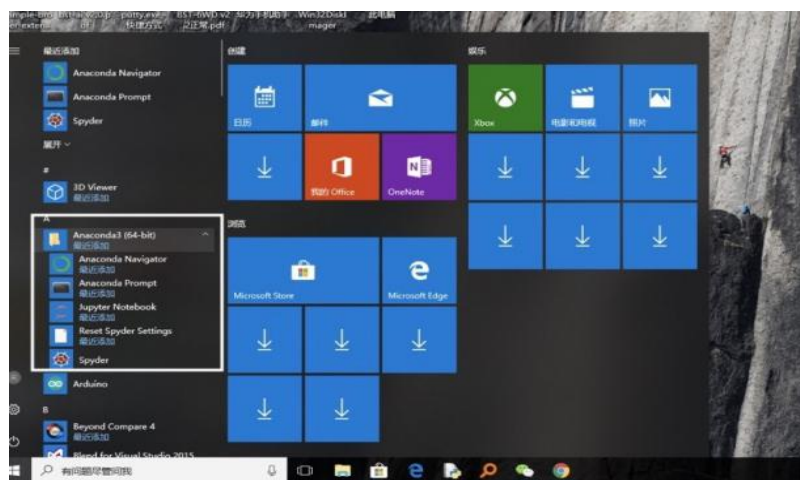


Figure1-2-2

## 2. Use the conda provided by Anaconda for us to download OpenCV on the PC-side.

For Windows users, if you want to use the conda command in any path of cmd, you need to add the script and the library\bin directory in the Anaconda installation path to the environment variable.

**Steps:**

1. We need to find the installation path of the Anaconda on the PC, copy the path of the file. ( for example: D:\anaconda)
2. Find the scripts under the anaconda file, copy the path to this file. (for example: D:\anaconda\Scripts)
3. Locate the Library/bin under the anaconda file and copy the path to the file, (for example: D:\anaconda\Scripts\Library\bin)
4. Configure environment variables: "This PC" -- "Properties" -- "Advanced System Settings" -- "Advanced" -- "Environment Variables (N)...". As shown in the figure1-3 below.
5. Select "Edit" in "User Variables for xxx" - copy the above three addresses to the environment variables. As shown in the figure1-4 below.

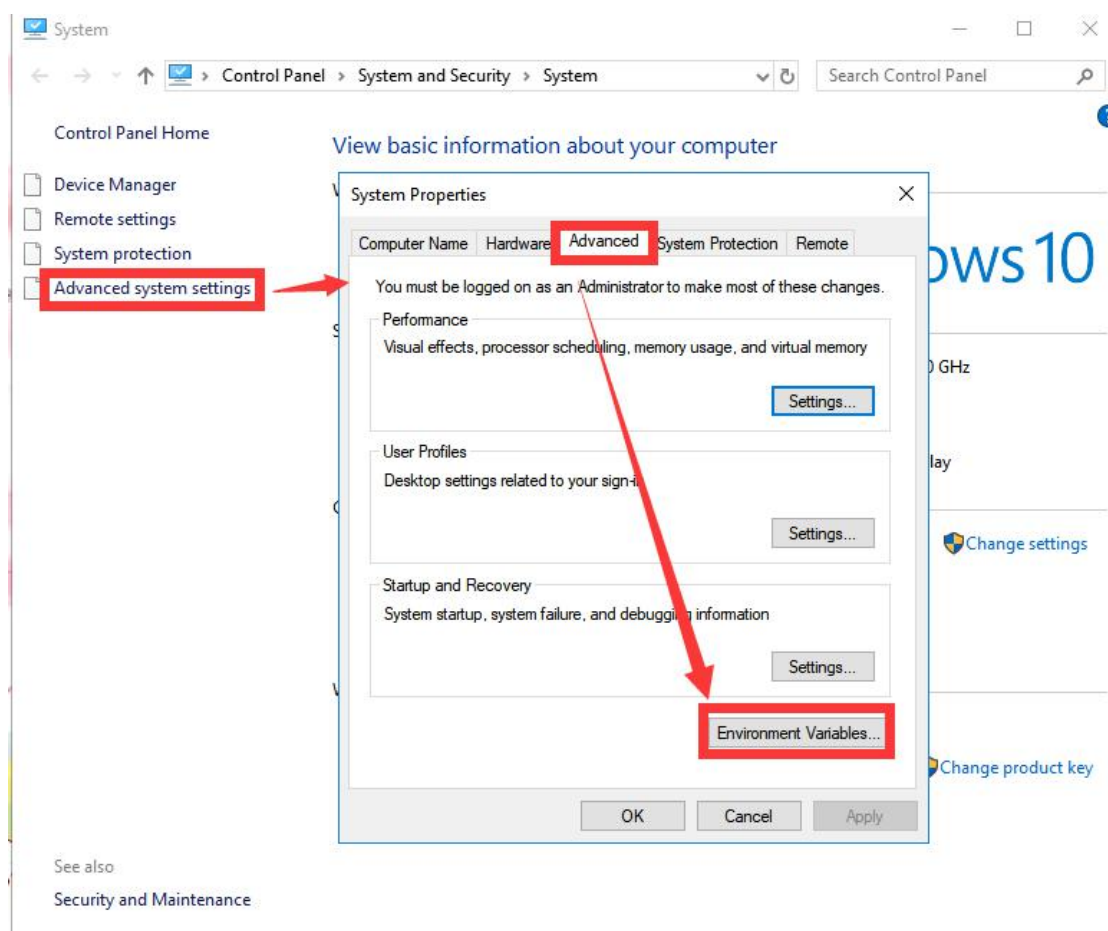


Figure1-3

## Environment Variables

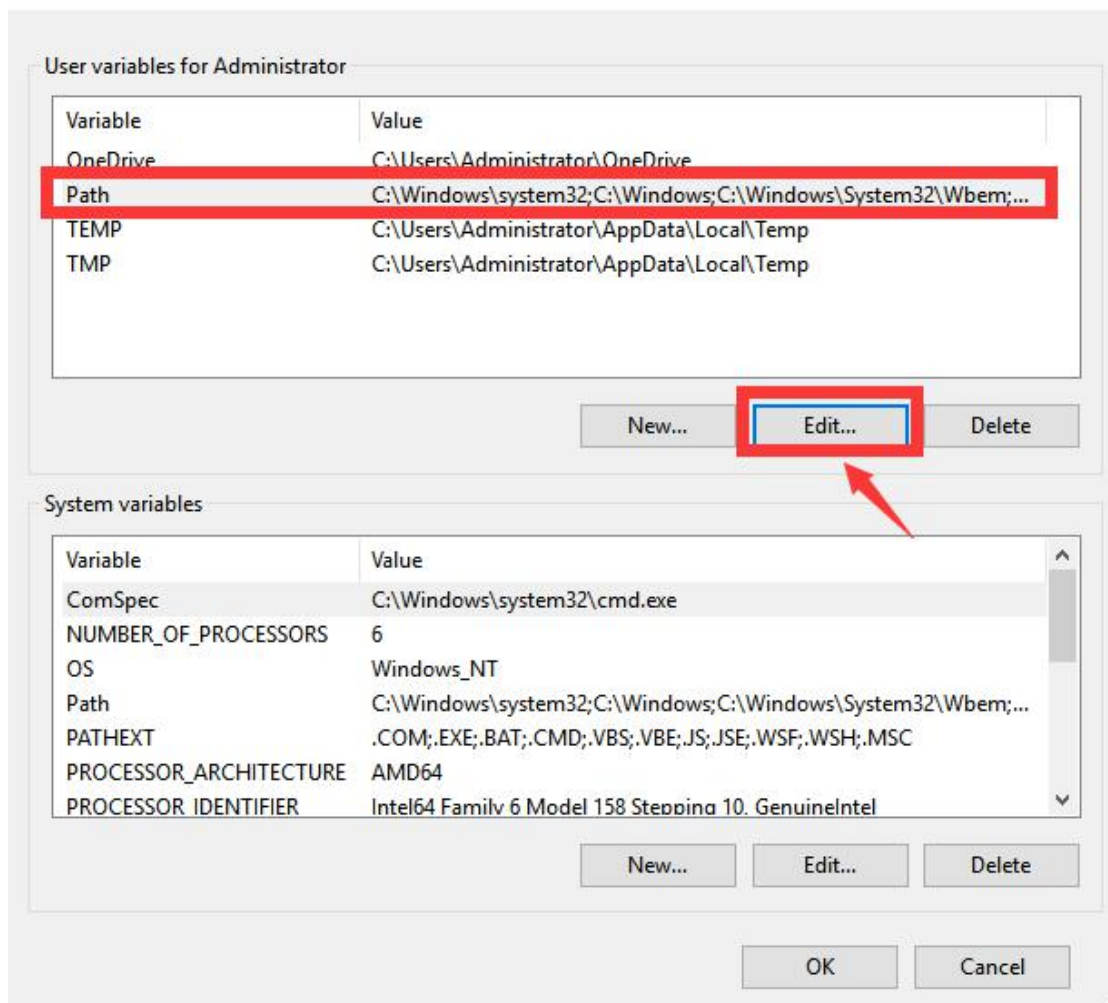


Figure1-4-1

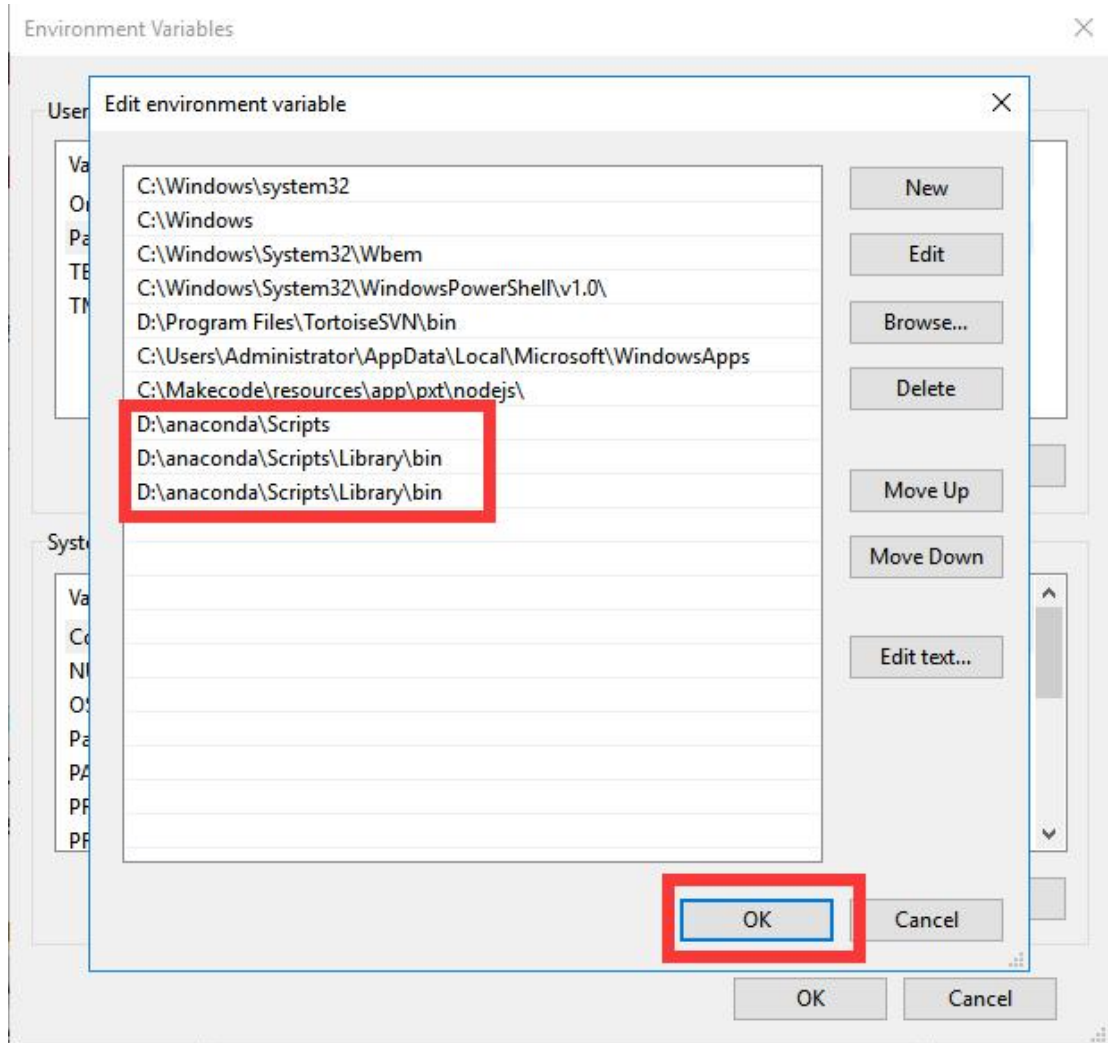


Figure1-4-2

6. Finally ,we need to restart the computer, open the search box in the start menu and input "cmd" into the command line. Enter `conda list` to check if the conda command is working properly.

Next, you need to open "cmd" on the computer, enter command :

`conda install --channel https://conda.anaconda.org/menpo opencv3`

in the command line to download conda, the download speed depends on the network performance of the PC, you need to enter "y" during the download.

After the installation is complete, insert the USB camera into the host and open the Spyder application under Anaconda to write a simple applet for testing.

