1. Install pytorch

1.1 Before installing pytorch, we need to check the version number of nvcc.
The version of pytorch and CUDA need to correspond.

cuda	pytorch
7.5	0.4.1，0.3.0，0.2.0，0.1.12-0.1.6
8.0	1.1.0，1.0.0，0.4.1
9.0	1.1.0，1.0.1, 1.0.0，0.4.1
9.2	1.6.0，1.5.0，1.4.0，1.2.0，0.4.1
10.0	1.2.0，1.1.0，1.0.1 ,1.0.0
10.1	1.6.0，1.5.0，1.4.0，1.3.0
10.2	1.6.0，1.5.0

1.2 Transfer torch install package into Jetson NANO system by WinSCP software.
Then, input following command.

```
sudo pip3 install torch-1.6.0a0+b31f58d-cp36-cp36m-linux_aarch64.whl
sudo pip3 install torchvision
sudo pip install boto3
```

1.3 Enter the command python3 in the terminal to enter the python3 running environment for testing, import torch
If you encounter this problem, ImportError: libopenblas.so.0: Cannot open shared object file or directory.
Input following command to solve this problem.

```
sudo apt-get install libopenblas-dev
```

As shown below.

```
import torch
print(torch.__version__)
```

```
Python 3.6.9 (default, Oct  8 2020, 12:12:24)
[GCC 8.4.0] on linux
Type "help", "copyright", "credits" or "license" for more information
>>> import torch
>>> print(torch.__version__)
1.6.0a0+b31f58d
>>>
```

1.4 Test the function of pytorch in the python3 environment through the following program.

```
from __future__ import print_function
import torch
x = torch.rand(5, 3)
print(x)
```

Output:

```
tensor([[0.3380, 0.3845, 0.3217],
        [0.8337, 0.9050, 0.2650],
        [0.2979, 0.7141, 0.9069],
        [0.1449, 0.1132, 0.1375],
        [0.4675, 0.3947, 0.1426]])
```

You also need to check whether the GPU driver and CUDA are enabled and can be accessed through PyTorch. Run the following command to return whether the CUDA driver is enabled.

```
import torch
torch.cuda.is_available()
```

After testing, install torchvision.
According to the introduction of the official website, the suitable torch version of pytorch1.6 is 0.7.
So we need to install torch v0.7.0


```
sudo apt-get install libjpeg-dev zlib1g-dev
git clone --branch v0.7.0 https://github.com/pytorch/vision torchvision
cd torchvision
export BUILD_VERSION=0.7.0
sudo python3 setup.py install
```

Tips:
The system may confirm some files during the installation process.
We can solve these error problems by installing this file.

```
ry_buffer.h:3:0,
                 from /home/jetson/torchvision/torchvision/csrc/cpu/video_reader
/VideoReader.cpp:6:
/home/jetson/torchvision/torchvision/csrc/cpu/decoder/defs.h:12:10: fatal error:
 libavcodec/avcodec.h: No such file or directory
 #include <libavcodec/avcodec.h>
          ^~~~~~~~~~~~~~~~~~~~~~
```

```
sudo apt install libavcodec-dev
sudo apt install libavformat-dev
```

sudo apt install libswscale-dev

Input following command to install again.

sudo python3 setup.py install

Enter the code in the python environment to see if the version corresponds:

```
import torchvision
print(torchvision.__version__)
```