

人工智能概述课程大作业

—— Pytorch 安装教程

PyTorch 的前身是 Torch，其底层和 Torch 框架一样，但是使用 Python 重新写了很多内容，不仅更加灵活，支持动态图，而且提供了 Python 接口，是一个以 Python 优先的深度学习框架，支持 GPU 加速。

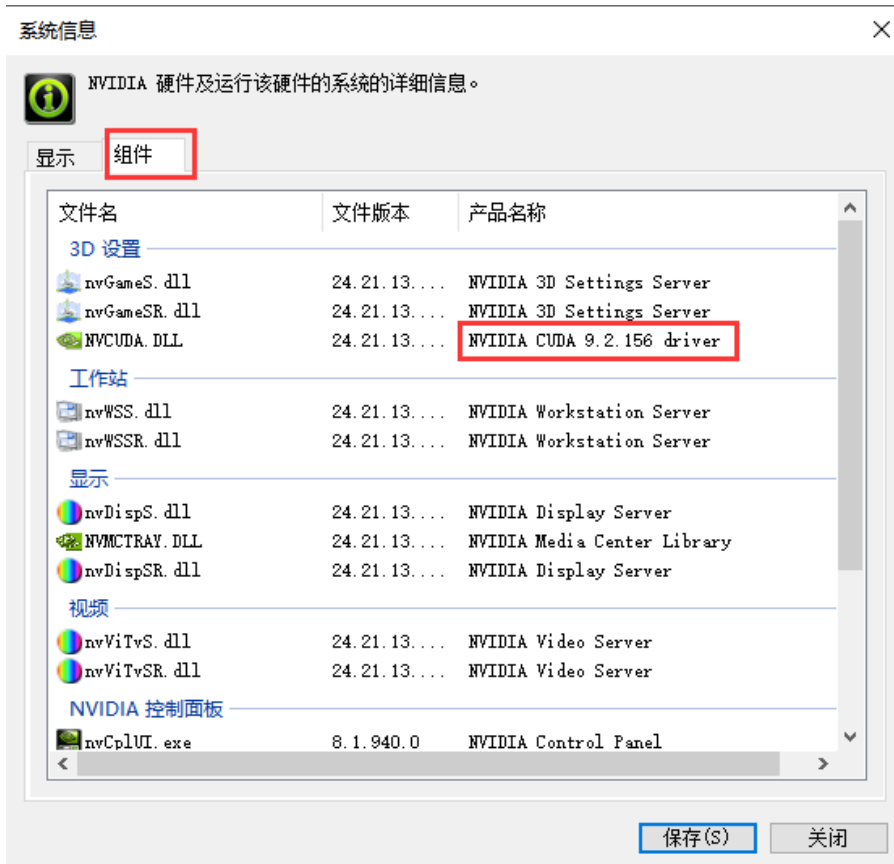
1. 事先确定环境

环境包括：操作系统 OS、CUDA 版本、安装方式（pip 或者 conda）

操作系统：win10

CUDA 版本：首先要保证自己的系统是有显卡的，才可以使用 GPU 加速；其次查看显卡的 CUDA 版本（英伟达的打开

NVIDIA 控制面板-点击左下角“系统信息”-“组件”-即可查看 CUDA 版本）



2. 确定环境后进入 pytorch 官网: <https://pytorch.org/get-started/locally/>

根据确定好的环境进行相应选择，PyTorch Build 选择

“Stable”，pip 命令是直接在命令行进行安装，conda 是在 Anaconda Prompt 在虚拟环境安装。

PyTorch Build	Stable (1.5.1)		Preview (Nightly)	
Your OS	Linux	Mac	Windows	
Package	Conda	Pip	LibTorch	Source
Language	Python		C++ / Java	
CUDA	9.2	10.1	10.2	None
Run this Command:	<code>pip install torch==1.5.1+cu92 torchvision==0.6.1+cu92 -f https://download.pytorch.org/whl/torch_stable.html</code>			

如果 CUDA 的版本是 9.2，目前 Pytorch 最新版本提供的是源代码下载（# Follow instructions at this URL:

<https://github.com/pytorch/pytorch#from-source>），源代码下载较为复杂，可以下载以往版本有 pip 命令或者 conda 命令的。以往版本点击“install previous versions of PyTorch”即可找到。

INSTALL PYTORCH

Select your preferences and run the install command. Stable represents the most currently tested and supported version of PyTorch. This should be suitable for many users. Preview is available if you want the latest, not fully tested and supported, 1.7 builds that are generated nightly. Please ensure that you have met the prerequisites below (e.g., **numpy**), depending on your package manager. Anaconda is our recommended package manager since it installs all dependencies. You can also [install previous versions of PyTorch](#). Note that LibTorch is only available for C++.

PyTorch Build	Stable (1.6.0)		Preview (Nightly)	
Your OS	Linux	Mac	Windows	
Package	Conda	Pip	LibTorch	Source
Language	Python		C++ / Java	
CUDA	9.2	10.1	10.2	None
Run this Command:	# Follow instructions at this URL: https://github.com/pytorch/pytorch#from-source			

INSTALLING PREVIOUS VERSIONS OF PYTORCH

We'd prefer you install the **latest version**, but old binaries and installation instructions are provided below for your convenience.

COMMANDS FOR VERSIONS \geq 1.0.0

v1.5.1

Conda

OSX

```
# conda
conda install pytorch==1.5.1 torchvision==0.6.1 -c pytorch
```

Linux and Windows

```
# CUDA 9.2
conda install pytorch==1.5.1 torchvision==0.6.1 cudatoolkit=9.2 -c pytorch

# CUDA 10.1
conda install pytorch==1.5.1 torchvision==0.6.1 cudatoolkit=10.1 -c pytorch

# CUDA 10.2
conda install pytorch==1.5.1 torchvision==0.6.1 cudatoolkit=10.2 -c pytorch
```

pip 安装

Package 选择 “pip”，复制 “Run this Command” 里的命令，在 cmd 命令行 python 安装

```
C:\Users\asus>python -m pip install torch==1.5.1+cu92 torchvision==0.6.1+cu92 -f https://download.pytorch.org/whl/torch_stable.html
Looking in links: https://download.pytorch.org/whl/torch_stable.html
Collecting torch==1.5.1+cu92
  Downloading https://download.pytorch.org/whl/cu92/torch-1.5.1%2Bcu92-cp36-cp36m-win_amd64.whl (694.1 MB)
    |#####| 694.1 MB 2.5 kB/s
Collecting torchvision==0.6.1+cu92
  Downloading https://download.pytorch.org/whl/cu92/torchvision-0.6.1%2Bcu92-cp36-cp36m-win_amd64.whl (1.3 MB)
    |#####| 1.3 MB 327 kB/s
Requirement already satisfied: numpy in d:\python3.6.5\lib\site-packages (from torch==1.5.1+cu92) (1.19.0)
Requirement already satisfied: future in d:\python3.6.5\lib\site-packages (from torch==1.5.1+cu92) (0.18.2)
Requirement already satisfied: pillow>=4.1.1 in d:\python3.6.5\lib\site-packages (from torchvision==0.6.1+cu92) (7.2.0)
Installing collected packages: torch, torchvision
Successfully installed torch-1.5.1+cu92 torchvision-0.6.1+cu92
```

conda 安装

安装之前加载清华镜像源以加速安装（不加的话使用国外的源，

下载速度不稳定)

```
conda config --add channels
```

<https://mirrors.tuna.tsinghua.edu.cn/anaconda/pkg/ree/>

```
conda config --add channels
```

<https://mirrors.tuna.tsinghua.edu.cn/anaconda/pkg/main/>

```
conda config --add channels
```

<https://mirrors.tuna.tsinghua.edu.cn/anaconda/cloud/pytorch/>

```
conda config --set show_channel_urls yes
```

PyTorch Build	Stable (1.6.0)		Preview (Nightly)	
Your OS	Linux	Mac	Windows	
Package	Conda	Pip	LibTorch	Source
Language	Python		C++ / Java	
CUDA	9.2	10.1	10.2	None
Run this Command:	conda install pytorch torchvision cudatoolkit=10.2 -c pytorch			

同样像上面选好，Package 选择 Conda，去掉命令里面的-c pytorch

3. 安装检查

装好后，输入下面三行命令，如果没报错，且最后一个 print 输出为 True，则安装成功

```
C:\Users\asus>python
Python 3.6.5 (v3.6.5:f59c0932b4, Mar 28 2018, 17:00:18) [MSC v.1900 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>> import torch
>>> import torchvision
>>> print(torch.cuda.is_available())
True
```

以下也是一种检验方式

```
>>> x = torch.rand(5, 3)
>>> print(x)
tensor([[0.2054, 0.0669, 0.3970],
        [0.4511, 0.0264, 0.0931],
        [0.5791, 0.6013, 0.5211],
        [0.9473, 0.4549, 0.7216],
        [0.2254, 0.2904, 0.6622]])
```