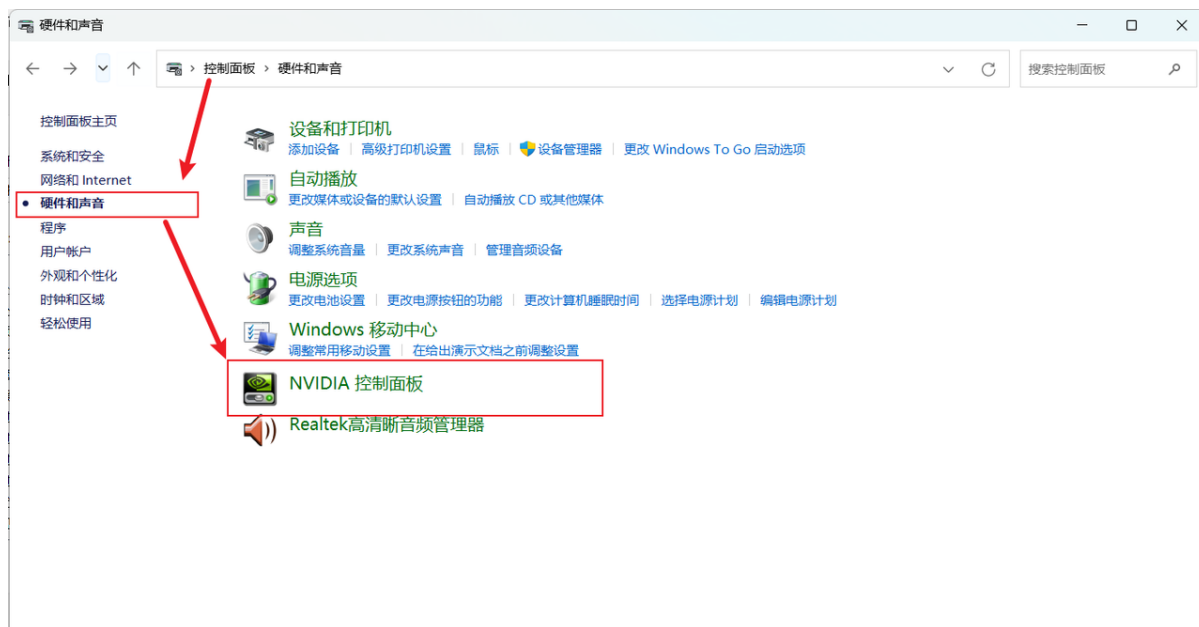


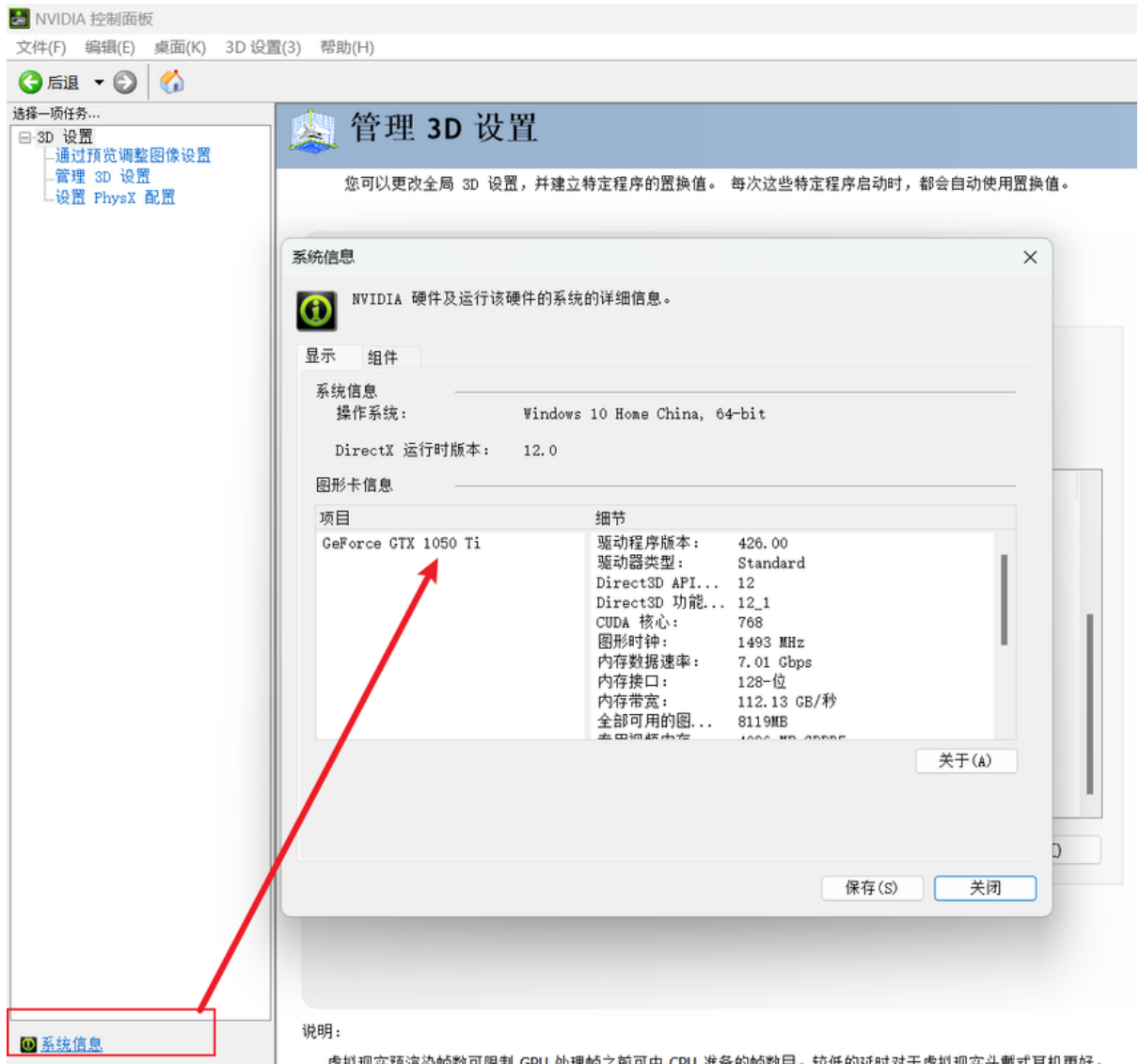
windows安装cuda教程

1. 查看是否安装NVIDIA显卡

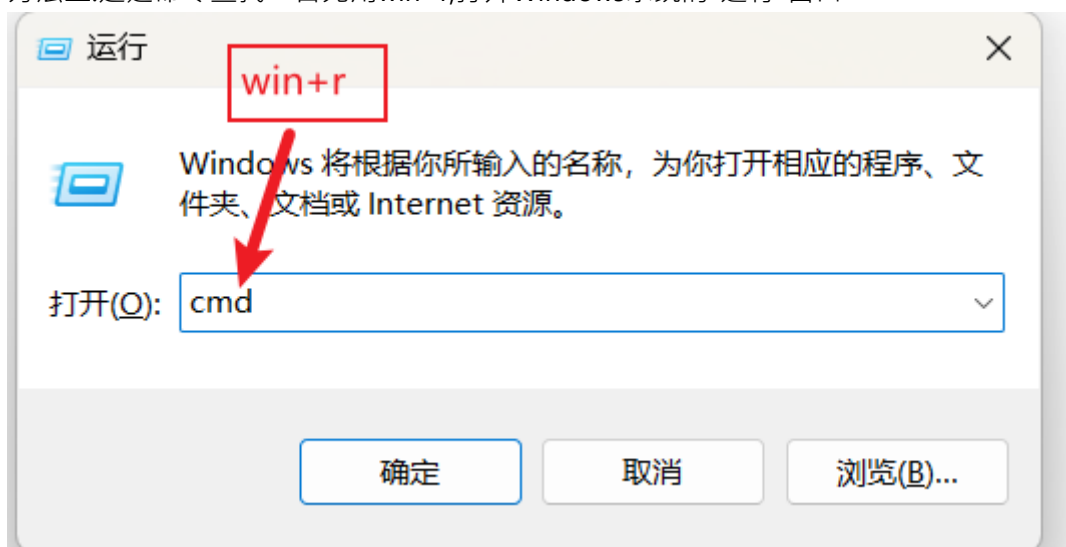
- 方法一:打开控制面板找到硬件与声音，然后找到nvidia控制面板



- 然后点击左下角系统信息，就能查看到gpu型号与驱动版本



- 方法二:通过命令查找，首先用win+r,打开Windows系统的“运行”窗口



- 切换路径到C:\Program Files\NVIDIA Corporation\NVSMI，也可以搜索找到NVSMI这个文件夹，最后输入nvidia-smi，就会显示该电脑能够装的cuda version的最高版本。

```
C:\WINDOWS\system32\cmd. X + v
Microsoft Windows [版本 10.0.22621.2134]
(c) Microsoft Corporation。保留所有权利。
C:\Users\19203>cd C:\Program Files\NVIDIA Corporation\NVSMI
C:\Program Files\NVIDIA Corporation\NVSMI>nvidia-smi
Mon Sep 11 12:42:35 2023

+-----+
| NVIDIA-SMI 426.00      Driver Version: 426.00      CUDA Version: 10.1     |
+-----+-----+
| GPU   Name                TCC/WDDM | Bus-Id        Disp.A | Volatile Uncorr. ECC |
| Fan  Temp  Perf  Pwr:Usage/Cap|      Memory-Usage | GPU-Util  Compute M. |
|=====+=====+
|  0  GeForce GTX 105... WDDM  | 00000000:01:00.0 Off |          N/A         |
| N/A   83C    P0     N/A /  N/A | 1153MiB / 4096MiB |    26%    Default   |
+-----+-----+

+-----+
| Processes:                                                       GPU Memory |
|  GPU       PID    Type    Process name                     Usage    |
|=====+=====+
|    0      32816    C       ...are\miniconda3\envs\jetracer\python.exe  N/A      |
+-----+


C:\Program Files\NVIDIA Corporation\NVSMI>
```

要更改路径，如果直接输入nvidia-smi可能会报错找不到该命令

2. 进入cuda toolkit官方下载界面<https://developer.nvidia.com/cuda-toolkit-archive>

← → ↺

developer.nvidia.com/cuda-toolkit-archive

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CUDA Toolkit Archive

Home

Previous releases of the CUDA Toolkit, GPU Computing SDK, documentation and developer drivers can be found using the links below. P and be sure to check www.nvidia.com/drivers for more recent production drivers appropriate for your hardware configuration.

Download Latest CUDA Toolkit

Learn More about CUDA Toolkit

Latest Release

[CUDA Toolkit 12.2.2 \(August 2023\), Versioned Online Documentation](#)

Archived Releases

[CUDA Toolkit 12.2.1 \(July 2023\), Versioned Online Documentation](#)

[CUDA Toolkit 12.2.0 \(June 2023\), Versioned Online Documentation](#)

[CUDA Toolkit 12.1.1 \(April 2023\), Versioned Online Documentation](#)

[CUDA Toolkit 12.1.0 \(February 2023\), Versioned Online Documentation](#)

选择的版本不要超高刚才查看的cuda version的版本

3 / 15

CUDA Toolkit 10.2 Download

Select Target Platform

Click on the green buttons that describe your target platform. Only supported platforms will be shown.

Operating System

WindowsLinuxMac OSX

Architecture

x86_64



Version

108.17Server 2019Server 2016Server 2012 R2


点击你想下载的系统就会出现如下的architecture和version

version是指电脑的windows的版本

3. 将下载好的文件解压，根据图片操作。临时解压路径可以不更改

	cuda_10.1.243_426.00_win10.exe	2023/1/17 11:42	应用程序	2,505,465...
	cuda-10.1-windows10-x64-v8.0.5.3...	2023/1/17 13:50	ZIP 压缩文件	293,228 KB

CUDA Setup Package



Please enter the folder where you want to temporarily extract the NVIDIA CUDA Toolkit installer. If the folder does not exist, it will be created for you.

Extraction path:

C:\Users\19203\AppData\Local\Temp\CUDA

临时解压路径

OKCancel

点击同意并继续



选择自定义安装



将第二个不要勾选



如果电脑没有安装visual studio就不要勾选

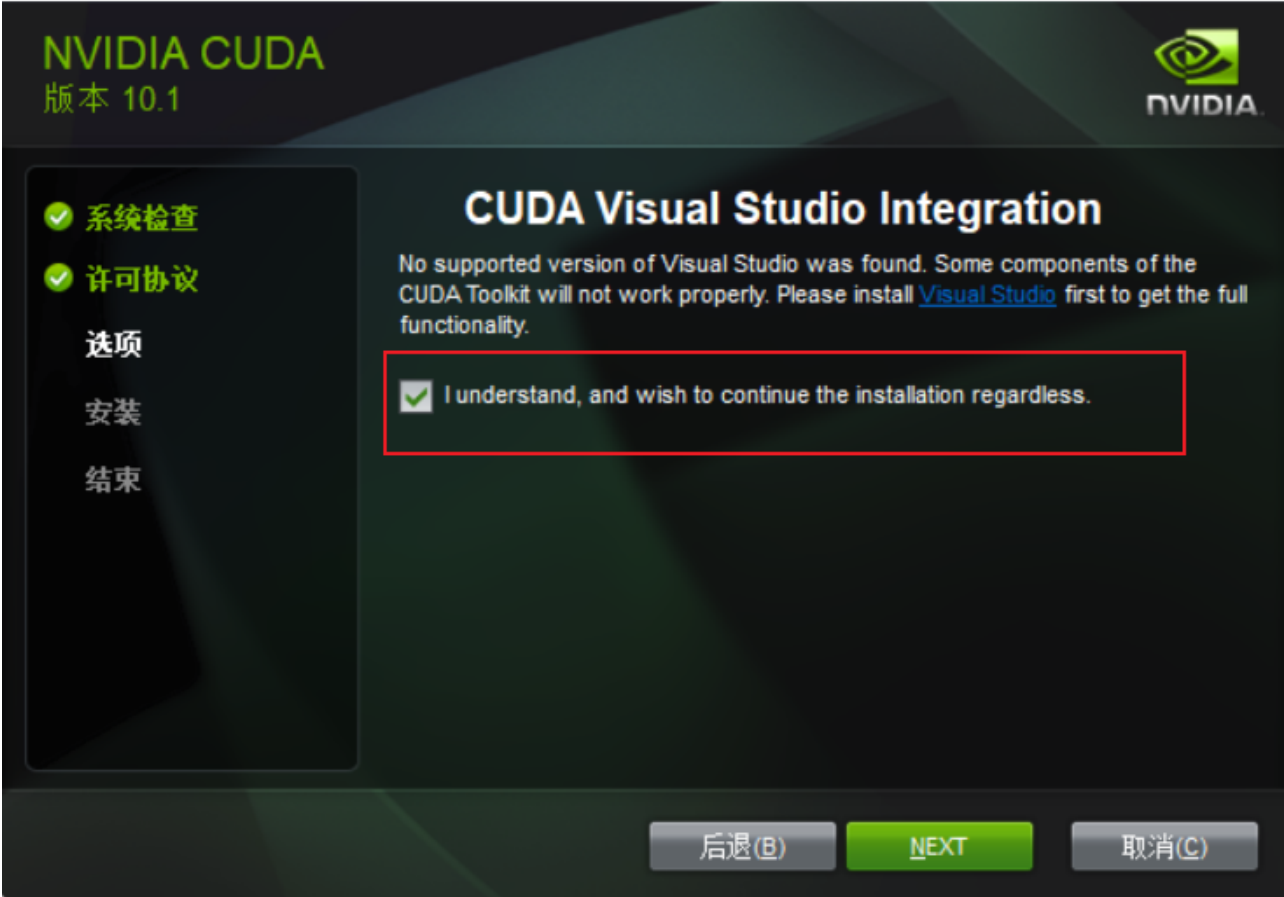




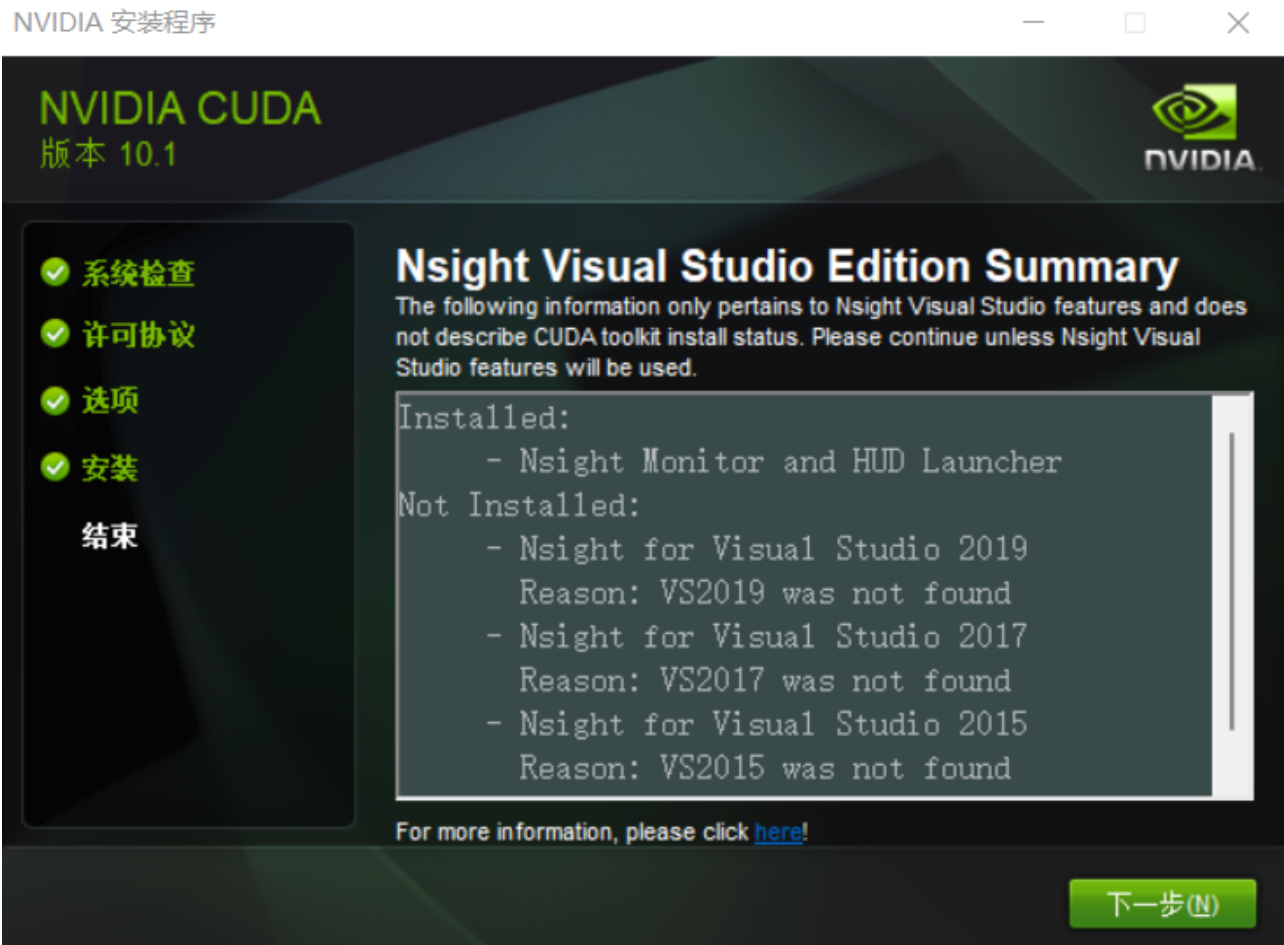
要记住这三个的安装位置，可以提前截图保留，后续配置环境变量时需要，可以根据自己需求更改安装位置，在这里我们将其改到D盘。



如果报没有支持的vs,可以勾选后next



点击下一步



检查组件状态，到此安装部分结束，点击关闭



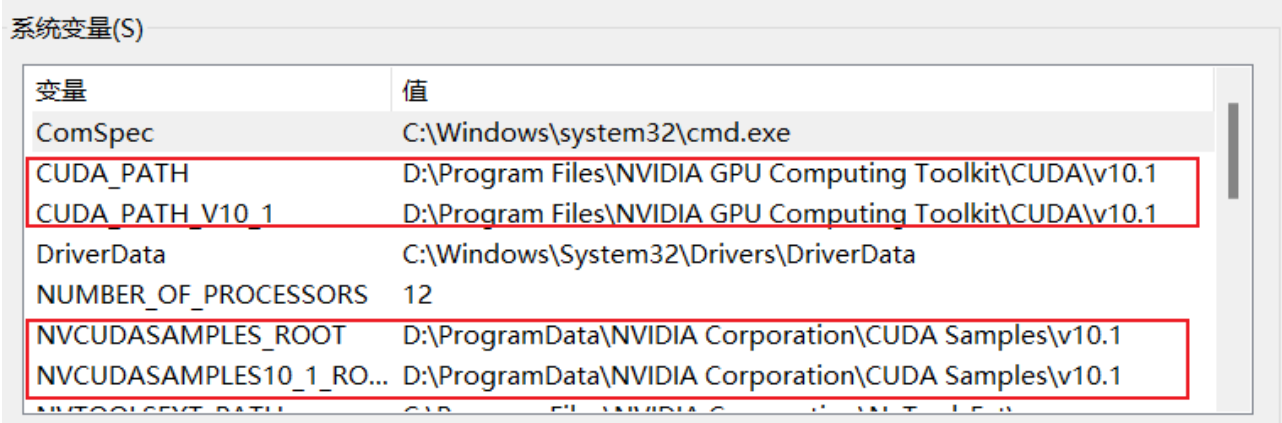
4. 配置cuda的环境变量，使用搜索命令，搜索查看高级系统设置，点击打开



点击环境变量



会看到系统变量，查看是否存在CUDA的环境变量，如果没有，则添加刚才截图的内容，就是刚才安装CUDA的位置；如果已经存在环境变量，则不用添加。



点击系统变量的右下角的编辑，添加环境变量

编辑环境变量



D:\Program Files\NVIDIA GPU Computing Toolkit\CUDA\v10.1\...
D:\Program Files\NVIDIA GPU Computing Toolkit\CUDA\v10.1\l...

C:\Program Files (x86)\Intel\Intel(R) Management Engine Comp...
C:\Program Files\Intel\Intel(R) Management Engine Componen...
C:\Windows\system32
C:\Windows
C:\Windows\System32\Wbem
C:\Windows\System32\WindowsPowerShell\v1.0\
C:\Windows\System32\OpenSSH\
C:\Program Files (x86)\Intel\Intel(R) Management Engine Comp...
C:\Program Files\Intel\Intel(R) Management Engine Componen...
C:\Program Files (x86)\NVIDIA Corporation\PhysX\Common
C:\Windows\system32
C:\Windows
C:\Windows\System32\Wbem
C:\Windows\System32\WindowsPowerShell\v1.0\
C:\Windows\System32\OpenSSH\
D:\Program Files\Bandizip\
D:\software\miniconda3
D:\software\miniconda3\Scripts
D:\software\miniconda3\Library\bin
C:\Program Files\NVIDIA Corporation\Night Compute 2010.4.0\

新建(N)

编辑(E)

浏览(B)...

删除(D)

上移(U)

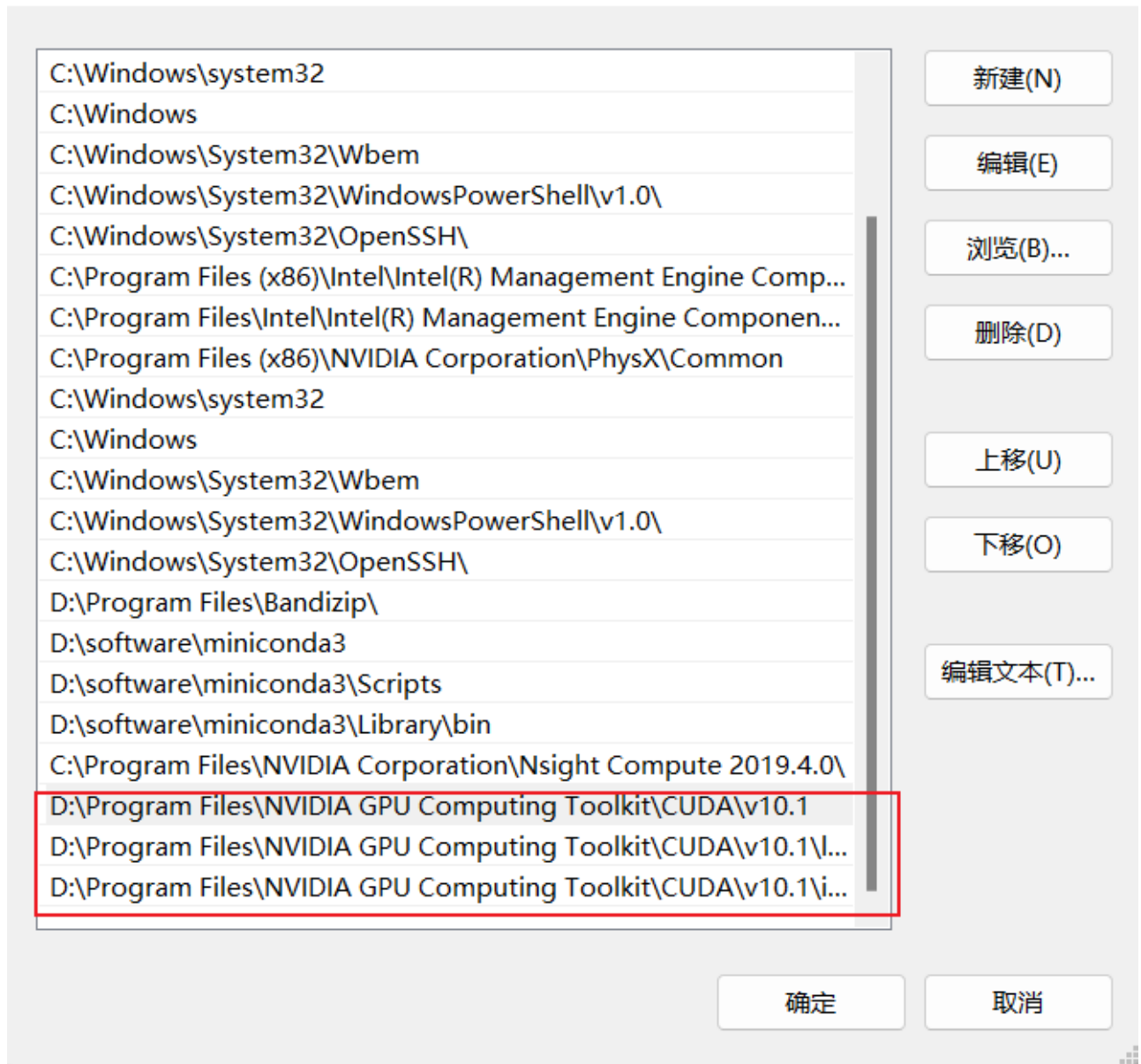
下移(O)

编辑文本(T)...

确定

取消

编辑环境变量

5. 安装cudnn,登录官网<https://developer.nvidia.com/rdp/cudnn-archive>

解压cudnn压缩包

此电脑

DATA (D:)

名称	修改日期	类型	大小
Appdocument	2023/3/4 9:57	文件夹	
BaiduNetdiskDownload	2023/3/4 10:07	文件夹	
cuda	2023/3/4 15:16	文件夹	
mirror	2023/3/4 10:32	文件夹	
Program Files	2023/3/4 14:31	文件夹	
Program Files (x86)	2023/3/4 10:49	文件夹	
ProgramData	2023/3/4 14:33	文件夹	
software	2023/3/4 14:04	文件夹	
cuda_10.1.243_426.00_win10.exe	2023/1/17 11:42	应用程序	2,505,465...
cudnn-10.1-windows10-x64-v8.0.5.3...	2023/1/17 13:50	ZIP 压缩文件	293,228 KB

解压cudnn压缩包

名称	修改日期	类型	大小
bin	2023/3/4 15:16	文件夹	
include	2023/3/4 15:16	文件夹	
lib	2023/3/4 15:16	文件夹	
NVIDIA_SL_A_cuDNN_Support.txt	2020/10/31 13:41	文本文档	18 KB

解压后得到的文件夹

将cudnn里的文件与刚才安装cuda里的文件进行替换

Program Files

NVIDIA GPU Computing Toolkit

CUDA

v10.1

名称

修改日期

类型

大小

bin

2023/3/4 14:43

文件夹

doc

2023/3/4 14:43

文件夹

extras

2023/3/4 14:43

文件夹

include

2023/3/4 14:43

文件夹

lib

2023/3/4 14:43

文件夹

libnvvp

2023/3/4 14:42

文件夹

nvml

2023/3/4 14:43

文件夹

nvvm

2023/3/4 14:43

文件夹

src

2023/3/4 14:43

文件夹

tools

2023/3/4 14:43

文件夹

名称

修改日期

bin

2023/3/4 15:16

include

2023/3/4 15:16

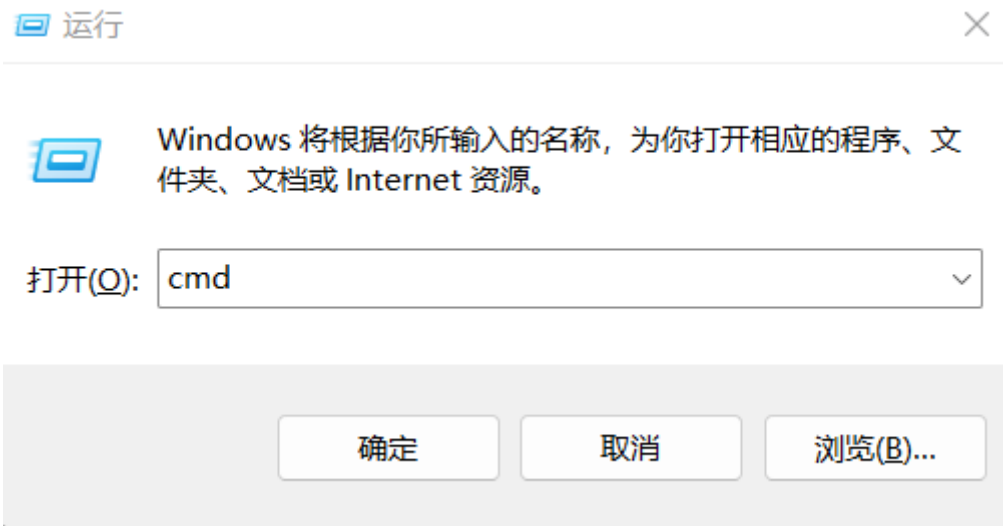
lib

2023/3/4 15:16

NVIDIA_SL_A_cuDNN_Support.txt

2020/10/31 13:41

6. 检查是否安装成功，使用cmd进入控制面板



输入nvcc -V,显示

cuda的版本即安装成功

```
C:\Windows\system32\cmd.exe
Microsoft Windows [版本 10.0.22000.1574]
(c) Microsoft Corporation。保留所有权利。

C:\Users\19203>nvcc -V
nvcc: NVIDIA (R) Cuda compiler driver
Copyright (c) 2005-2019 NVIDIA Corporation
Built on Sun_Jul_28_19:12:52_Pacific_Daylight_Time_2019
Cuda compilation tools, release 10.1, V10.1.243

C:\Users\19203>nvcc --version
nvcc: NVIDIA (R) Cuda compiler driver
Copyright (c) 2005-2019 NVIDIA Corporation
Built on Sun_Jul_28_19:12:52_Pacific_Daylight_Time_2019
Cuda compilation tools, release 10.1, V10.1.243

C:\Users\19203>
C:\Users\19203>nvcc -V
nvcc: NVIDIA (R) Cuda compiler driver
Copyright (c) 2005-2019 NVIDIA Corporation
Built on Sun_Jul_28_19:12:52_Pacific_Daylight_Time_2019
Cuda compilation tools, release 10.1, V10.1.243

C:\Users\19203>nvcc --version
nvcc: NVIDIA (R) Cuda compiler driver
Copyright (c) 2005-2019 NVIDIA Corporation
Built on Sun_Jul_28_19:12:52_Pacific_Daylight_Time_2019
Cuda compilation tools, release 10.1, V10.1.243

C:\Users\19203>D: 1.切换盘符
D:\>cd D:\Program Files\NVIDIA GPU Computing Toolkit\CUDA\v10.1\extras\demo_suite 2.切换到demo_suite目录下
D:\Program Files\NVIDIA GPU Computing Toolkit\CUDA\v10.1\extras\demo_suite>deviceQuery.exe 3.执行deviceQuery.exe
deviceQuery.exe Starting...

  CUDA Device Query (Runtime API) version (CUDA static linking)

Detected 1 CUDA Capable device(s)
```

检查是否出现了PASS，若出现了PASS，则表示运行成功

```
Detected 1 CUDA Capable device(s)
Device 0: "GeForce GTX 1050 Ti"
  CUDA Driver Version / Runtime Version      10.1 / 10.1
  CUDA Capability Major/Minor version number: 6.1
  Total amount of global memory:              4096 MBytes (4294967296 bytes)
  ( 6) Multiprocessors, (128) CUDA Cores/MP: 768 CUDA Cores
  GPU Max Clock rate:                        1620 MHz (1.62 GHz)
  Memory Clock rate:                          3504 Mhz
  Memory Bus Width:                           128-bit
  L2 Cache Size:                             1048576 bytes
  Maximum Texture Dimension Size (x,y,z)     1D=(131072), 2D=(131072, 65536), 3D=(16384, 16384, 16384)
  Maximum Layered 1D Texture Size, (num) layers 1D=(32768), 2048 layers
  Maximum Layered 2D Texture Size, (num) layers 2D=(32768, 32768), 2048 layers
  Total amount of constant memory:            zu bytes
  Total amount of shared memory per block:    zu bytes
  Total number of registers available per block: 65536
  Warp size:                                 32
  Maximum number of threads per multiprocessor: 2048
  Maximum number of threads per block:        1024
  Max dimension size of a thread block (x,y,z): (1024, 1024, 64)
  Max dimension size of a grid size (x,y,z):  (2147483647, 65535, 65535)
  Maximum memory pitch:                       zu bytes
  Texture alignment:                          zu bytes
  Concurrent copy and kernel execution:       Yes with 5 copy engine(s)
  Run time limit on kernels:                   Yes
  Integrated GPU sharing Host Memory:          No
  Support host page-locked memory mapping:    Yes
  Alignment requirement for Surfaces:          Yes
  Device has ECC support:                      Disabled
  CUDA Device Driver Mode (TCC or WDDM):       WDDM (Windows Display Driver Model)
  Device supports Unified Addressing (UVA):    Yes
  Device supports Compute Preemption:          Yes
  Supports Cooperative Kernel Launch:          No
  Supports MultiDevice Co-op Kernel Launch:   No
  Device PCI Domain ID / Bus ID / location ID: 0 / 1 / 0
  Compute Mode:
    < Default (multiple host threads can use ::cudaSetDevice() with device simultaneously) >

deviceQuery, CUDA Driver = CUDART, CUDA Driver Version = 10.1, CUDA Runtime Version = 10.1, NumDevs = 1, Device0 = GeForce GTX 1050 Ti
Result = PASS
D:\Program Files\NVIDIA GPU Computing Toolkit\CUDA\v10.1\extras\demo_suite>
```

检查是否出现了PASS，若出现了PASS，则表示运行成功

```
D:\Program Files\NVIDIA GPU Computing Toolkit\CUDA\v10.1\extras\demo_suite>bandwidthTest.exe
[CUDA Bandwidth Test] - Starting...
Running on...

Device 0: GeForce GTX 1050 Ti
Quick Mode

Host to Device Bandwidth, 1 Device(s)
PINNED Memory Transfers
  Transfer Size (Bytes)      Bandwidth(MB/s)
  33554432                   11977.5

Device to Host Bandwidth, 1 Device(s)
PINNED Memory Transfers
  Transfer Size (Bytes)      Bandwidth(MB/s)
  33554432                   9693.4

Device to Device Bandwidth, 1 Device(s)
PINNED Memory Transfers
  Transfer Size (Bytes)      Bandwidth(MB/s)
  33554432                   95589.7

Result = PASS

NOTE: The CUDA Samples are not meant for performance measurements. Results may vary when GPU Boost is enabled.
D:\Program Files\NVIDIA GPU Computing Toolkit\CUDA\v10.1\extras\demo_suite>
```