

PyTorch 安装

[一、虚拟环境搭建](#)

[二、PyTorch CPU 环境搭建\(建议\)](#)

[三、PyTorch GPU 环境搭建](#)

[四、异常说明](#)



NOTE: CPU 和 GPU 环境只能二选一，建议安装 CPU 环境。或者创建两个虚拟环境。

一、虚拟环境搭建

1.1 安装虚拟环境

Bash

```
# 建议采用anaconda或者miniconda安装对应的环境，并创建虚拟环境  
https://repo.anaconda.com/archive/  
https://repo.anaconda.com/miniconda/  
  
# 建议安装3.9、3.11或者3.12的版本  
conda create --name gpu_default python=3.12  
# 或者  
conda create --name cpu_default python=3.12
```

```
(open_manus) PS C:\Users\19410> conda create --name gpu_default python=3.12  
Collecting package metadata (current_repodata.json): done  
Solving environment: done  
## Package Plan ##  
environment location: D:\anaconda3\envs\gpu_default  
added / updated specs:  
- python=3.12  
  
The following NEW packages will be INSTALLED:  
bzip2 anaconda/pkgs/main/win-64::bzip2-1.0.8-h2bbff1b_6 None  
ca-certificates anaconda/pkgs/main/win-64::ca-certificates-2025.2.25-haa95532_0 None  
expat anaconda/pkgs/main/win-64::expat-2.6.4-h8ddb27b_0 None  
libffi anaconda/pkgs/main/win-64::libffi-3.4.4-hd77b12b_1 None  
openssl anaconda/pkgs/main/win-64::openssl-3.0.16-h3f729d1_0 None  
pip anaconda/pkgs/main/win-64::pip-25.0-py312haa95532_0 None  
python anaconda/pkgs/main/win-64::python-3.12.9-h14fcf60_0 None  
setuptools anaconda/pkgs/main/win-64::setuptools-75.8.0-py312haa95532_0 None  
sqlite anaconda/pkgs/main/win-64::sqlite-3.45.3-h2bbff1b_0 None  
tk anaconda/pkgs/main/win-64::tk-8.6.14-h0416ee5_0 None  
tzdata anaconda/pkgs/main/noarch::tzdata-2025a-h04d1e81_0 None  
vc anaconda/pkgs/main/win-64::vc-14.42-haa95532_4 None  
vs2015_runtime anaconda/pkgs/main/win-64::vs2015_runtime-14.42.34433-he0abc0d_4 None  
wheel anaconda/pkgs/main/win-64::wheel-0.45.1-py312haa95532_0 None  
xz anaconda/pkgs/main/win-64::xz-5.6.4-h4754444_1 None  
zlib anaconda/pkgs/main/win-64::zlib-1.2.13-h8cc25b3_1 None  
  
Proceed ([y]/n)? y  
Preparing transaction: done  
Verifying transaction: | |
```

```

Proceed ([y]/n)? y

Preparing transaction: done
Verifying transaction: done
Executing transaction: done
#
# To activate this environment, use
#
#     $ conda activate gpu_default
#
# To deactivate an active environment, use
#
#     $ conda deactivate

Retrieving notices: ...working... done
fetched https://repo.anaconda.com/pkgs/main/win-64/conda-4.7.12-py37_0.json

```

1.2 查看虚拟环境是否安装成功

Bash

```

conda activate gpu_default
python -V

(open_manus) PS C:\Users\19410> conda activate gpu_default
(gpu_default) PS C:\Users\19410> python -V
Python 3.12.9
(gpu_default) PS C:\Users\19410>

```

二、PyTorch CPU 环境搭建(建议)

Bash

```

# 参考: https://pytorch.org/get-started/previous-versions/
# 使用阿里云python pip源: https://mirrors.aliyun.com/pypi/simple/
# 安装命令
# pip install xxx -i https://mirrors.aliyun.com/pypi/simple/
pip install torch==2.3.1 torchvision==0.18.1 torchaudio==2.3.1

(cpu_default) PS C:\Users\19410> pip install torch==2.3.1 torchvision==0.18.1 torchaudio==2.3.1
Looking in indexes: https://mirrors.aliyun.com/pypi/simple
Collecting torch==2.3.1
  Downloading https://mirrors.aliyun.com/pypi/packages/af/73/cf6cabe00fb8a064c7b373fb3471d85bcc3991d175af82fead4a2857c669/torch-2.3.1-cp312-cp312-win_amd64.whl (159.7 MB)
Collecting torchvision==0.18.1
  Downloading https://mirrors.aliyun.com/pypi/packages/0f/b5/30ndje1a610a236426eed6ac57ae0f1bbcd4d526008e331f750e34e88c06/torchvision-0.18.1-cp312-cp312-win_amd64.whl (1.2 MB)
Collecting torchaudio==2.3.1
  Downloading https://mirrors.aliyun.com/pypi/packages/22/fa/23a6056de8bf6bac7026efb9c7163335c57b79437618686149daf2fb9e39/torchaudio-2.3.1-cp312-cp312-win_amd64.whl (2.4 MB)
Collecting filelock (from torch==2.3.1)
  Downloading https://mirrors.aliyun.com/pypi/packages/4d/36/a115987e2d8c308a745971f4b59b2ca3acc/filelock-3.18.0-py3-none-any.whl (16 kB)
Collecting typing_extensions==4.0 (from torch==2.3.1)
  Downloading https://mirrors.aliyun.com/pypi/packages/df/c5/e7a0b05e6d9f94c8ab7379e599e60368b6bffccde609969a5325f47f1332/typing_extensions-4.13.1-py3-none-any.whl (45 kB)
Collecting sympy (from torch==2.3.1)
  Downloading https://mirrors.aliyun.com/pypi/packages/99/ff/c87e0622bd1adea79d2fb025ade9ed98954c9033722eb707053d310d4f3/sympy-1.13.3-py3-none-any.whl (6.2 MB)
Collecting networkx (from torch==2.3.1)
  Downloading https://mirrors.aliyun.com/pypi/packages/b9/54/dd738b32a14ea797538a4479b2ed4a6fb250f682a9cfb997e968bf8261/networkx-3.4.2-py3-none-any.whl (1.7 MB)
Collecting jinja2 (from torch==2.3.1)
  Downloading https://mirrors.aliyun.com/pypi/packages/62/a1/3d680cbfd5f4b8f15abc1d571870c5fc3e594bb582bc3b64ea099db13e56/jinja2-3.1.6-py3-none-any.whl (134 kB)
Collecting fsspec (from torch==2.3.1)
  Downloading https://mirrors.aliyun.com/pypi/packages/44/b4/e0cfca1e6f1e990f3e64b7d941ddc4acd7b19d6edd51abf495f32bla9e4/fsspec-2025.3.2-py3-none-any.whl (194 kB)
Collecting mkl<=2021.4.0,>=2021.1.1 (from torch==2.3.1)
  Downloading https://mirrors.aliyun.com/pypi/packages/fe/1c/5f6dbf18e8b73e0a5472466f0ea8d48ce9fae39bd2ff38cef8dce61259/mkl-2021.4.0-py2.py3-none-win_amd64.whl (228.5 MB)
Collecting numpy (from torchvision==0.18.1)
  Downloading https://mirrors.aliyun.com/pypi/packages/46/69/8cf4ff28781c2a8ef4255fdc7e9097527c6dc4e4df147e3cad5d9357ce85/numpy-2.2.4-cp312-cp312-win_amd64.whl (12.6 MB)
Collecting pillow<8.3.*,>=5.3.0 (from torchvision==0.18.1)
  Downloading https://mirrors.aliyun.com/pypi/packages/08/5c/2104299949b9d504ba3f3f4d35f73dbd14ef31bb1dcd2c1b66a5b7dfda44/pillow-11.1.0-cp312-cp312-win_amd64.whl (536 kB)
Collecting intel-openmp<=2021.4.0,* (from mkl<=2021.4.0,>=2021.1.1->torch==2.3.1)
  Downloading https://mirrors.aliyun.com/pypi/packages/6f/21/b590c0cc3888b24f2ac9898c41d852d7454a1695fba34bee85dba6dc408/intel_openmp-2021.4.0-py2.py3-none-win_amd64.whl (3.5 MB)
Collecting tbbs==2021.* (from mkl<=2021.4.0,>=2021.1.1->torch==2.3.1)
  Downloading https://mirrors.aliyun.com/pypi/packages/9b/24/84ce997e8ae6296168a74d0d9c4dde572d90fb23fd7c0b219c30ff71e00e/tbb-2021.13.1-py3-none-win_amd64.whl (286 kB)
Collecting MarkupSafe<2.0 (from jinja2->torch==2.3.1)
  Downloading https://mirrors.aliyun.com/pypi/packages/c1/80/a61f99dc1a936413c3e4e1eeccac96c0da5ed07ad56fd975f1a99da5bc630/MarkupSafe-3.0.2-cp312-cp312-win_amd64.whl (15 kB)
Collecting mpmath<1.4,>=1.1.0 (from sympy->torch==2.3.1)
  Downloading https://mirrors.aliyun.com/pypi/packages/e3/43/7d92a15f894aa0c9c4b49b8e9ac9850d6e63b03c932c0367a13ae62209/mpmath-1.3.0-py3-none-any.whl (536 kB)

```

```
Collecting MarkupSafe>=2.0 (from jinja2->torch==2.3.1)
  Downloading https://mirrors.aliyun.com/pypi/packages/c1/80/a61f99dc3a936413c3ee4e1eeccac96c0da5ed87ad56fd975f1a9da5bc630/MarkupSafe-3.0.2-cp312-cp312-win_amd64.whl (15 kB)
Collecting mpmath>1.4 >=1.1.0 (from sympy->torch==2.3.1)
  Downloading https://mirrors.aliyun.com/pypi/packages/43/e3/7d92a15f89aa0c9c4b49b0ee9ac9850d6e63b03c9c32c8367a13ae62209/mpmath-1.3.0-py3-none-any.whl (536 kB)
Installing collected packages: tbb, mpmath, intel-openmp, typing-extensions, sympy, pillow, numpy, networkx, mkl, MarkupSafe, fsspec, filelock, jinja2, torch, torchvision, torchaudio
SuccessFully installed MarkupSafe-3.0.2 filelock-3.18.0 fsspec-2025.3.2 intel-openmp-2021.4.0 jinja2-3.1.6 mkl-2021.4.0 mpmath-1.3.0 networkx-3.4.2 numpy-2.2.4 pillow-11.1.0 sympy-1.13.3 tbb-2021.13.1 torch-2.3.1 torchaudio-2.3.1 torchvision-0.18.1 typing-extensions-4.13.1
(cpp_default) PS C:\Users\19410> pip list
Package           Version
-----
filelock          3.18.0
fsspec            2025.3.2
intel-openmp      2021.4.0
Jinja2             3.1.6
MarkupSafe         3.0.2
mkl               2021.4.0
mpmath            1.3.0
networkx          3.4.2
numpy              2.2.4
pillow             11.1.0
pip                25.0
setuptools        75.0.0
sympy              1.13.3
tbb                2021.13.1
torch              2.3.1
torchaudio         2.3.1
torchvision        0.18.1
typing_extensions  4.13.1
wheel              0.45.1
(cpp_default) PS C:\Users\19410> |
```

Bash

```
# 测试安装是否正常
# 1. 进入python命令行
python
# 2. python命令行中输入一下命令
import torch
torch.__version__
torch.rand(2,3)

# 查看正常的numpy 版本
import numpy as np
np.__version__
```

```
(cpu_default) PS C:\Users\19410> python
Python 3.12.9 | packaged by Anaconda, Inc. | (main, Feb  6 2025, 18:49:16) [MSC v.1929 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license" for more information.
>>> import torch
>>> torch.__version__
'2.3.1+cpu'
>>> torch.rand(2,3)
tensor([[0.1779, 0.9306, 0.1183],
       [0.7449, 0.4182, 0.0382]])
>>>
```

```
>>> import numpy as np
>>> np.__version__
'1.26.4'
```

三、PyTorch GPU 环境搭建

3.1 查看 GPU 版本及驱动信息

```
Bash
# 查看驱动信息，如果查看不到，需要确定GPU版本以及是否安装好nvidia驱动
# NOTE: 当前默认仅支持nvidia gpu
nvidia-smi
```

```
(gpu_default) PS C:\Users\19410> nvidia-smi
Mon Apr 7 22:44:26 2025
+-----+
| NVIDIA-SMI 572.42       Driver Version: 572.42        CUDA Version: 12.8 |
| GPU  Name        Driver-Model | Bus-Id     Disp.A  Volatile Uncorr. ECC | | | | | |
| Fan  Temp   Perf  Pwr/Usage/Cap | Memory-Usage | GPU-Util Compute M. |
|          |          |          |          |          |          | MIG M. |
+-----+
| 0  NVIDIA GeForce RTX 4060 ... WDDM 00000000:01:00.0 Off  N/A |
| N/A 35C P0    14W / 120W | 0MiB / 8188MiB | 0%  Default  N/A |
+-----+
+-----+
| Processes:           GPU Memory |
| GPU  GI CI      PID  Type  Process name          Usage |
| ID  ID          ID   |
+-----+
| No running processes found |
+-----+
```

3.2 安装 pytorch gpu 环境及测试

Bash

```
# 参考: https://pytorch.org/get-started/previous-versions/
# 安装命令
pip install torch==2.3.1 torchvision==0.18.1 torchaudio==2.3.1 \
--index-url https://download.pytorch.org/whl/cu121
```

```
(gpu_default) PS C:\Users\19410> pip install torch==2.3.1 torchvision==0.18.1 torchaudio==2.3.1 --index-url https://download.pytorch.org/whl/cu121
Looking in indexes: https://download.pytorch.org/whl/cu121
WARNING: Retrying (Retry(total=4, connect=None, read=None, redirect=None, status=None)) after connection broken by 'ProxyError('Cannot connect to proxy.', TimeoutError('_ssl.c:993
: The handshake operation timed out'))': /whl/cu121/torch/
Collecting torch==2.3.1
  Downloading https://download.pytorch.org/whl/cu121/torch-2.3.1%2Bcu121-cp312-cp312-win_amd64.whl (2423.5 MB)
    2.4/2.4 GB 1.9 MB/s eta 0:00:00
Collecting torchvision==0.18.1
  Downloading https://download.pytorch.org/whl/cu121/torchvision-0.18.1%2Bcu121-cp312-cp312-win_amd64.whl (5.7 MB)
    5.7/5.7 MB 2.9 MB/s eta 0:00:00
Collecting torchaudio==2.3.1
  Downloading https://download.pytorch.org/whl/cu121/torchaudio-2.3.1%2Bcu121-cp312-cp312-win_amd64.whl (4.1 MB)
    4.1/4.1 MB 3.5 MB/s eta 0:00:00
Collecting filelock (from torch==2.3.1)
  Downloading https://download.pytorch.org/whl/filelock-3.13.1-py3-none-any.whl.metadata (2.8 kB)
Collecting typing_extensions<4.0 (from torch==2.3.1)
  Downloading https://download.pytorch.org/whl/typing_extensions-4.12.2-py3-none-any.whl.metadata (3.0 kB)
Collecting sympy (from torch==2.3.1)
  Downloading https://download.pytorch.org/whl/sympy-1.13.1-py3-none-any.whl (6.2 MB)
    6.2/6.2 MB 2.7 MB/s eta 0:00:00
Collecting networkx (from torch==2.3.1)
  Downloading https://download.pytorch.org/whl/networkx-3.3-py3-none-any.whl.metadata (5.1 kB)
Collecting jinja2 (from torch==2.3.1)
  Downloading https://download.pytorch.org/whl/Jinja2-3.1.4-py3-none-any.whl.metadata (2.6 kB)
Collecting fsspec (from torch==2.3.1)
  Downloading https://download.pytorch.org/whl/fsspec-2024.6.1-py3-none-any.whl.metadata (11 kB)
Collecting mkl<=2021.4.0,>=2021.1.1 (from torch==2.3.1)
  Downloading https://download.pytorch.org/whl/mkl-2021.4.0-py2.py3-none-win_amd64.whl (228.5 MB)
    228.5/228.5 MB 1.9 MB/s eta 0:00:00
Collecting numpy (from torchvision==0.18.1)
  Downloading https://download.pytorch.org/whl/numpy-2.1.2-cp312-cp312-win_amd64.whl.metadata (59 kB)
Collecting pillow<3.3,*,>=5.3.0 (from torchvision==0.18.1)
  Downloading https://download.pytorch.org/whl/pillow-11.0.0-cp312-cp312-win_amd64.whl.metadata (9.3 kB)
Collecting intel-openmp<2021.* (from mkl<=2021.4.0,>=2021.1.1->torch==2.3.1)
  Downloading https://download.pytorch.org/whl/intel_openmp-2021.4.0-py2.py3-none-win_amd64.whl (3.5 MB)
    3.5/3.5 MB 1.3 MB/s eta 0:00:00
Collecting tbb=<2021.* (from mkl<=2021.4.0,>=2021.1.1->torch==2.3.1)
  Downloading https://download.pytorch.org/whl/tbb-2021.11.0-py3-none-win_amd64.whl (298 kB)
Collecting MarkupSafe<2.0 (from jinja2->torch==2.3.1)
  Downloading https://download.pytorch.org/whl/MarkupSafe-2.1.5-cp312-cp312-win_amd64.whl (17 kB)
Collecting mpmath<1.4,>=1.1.0 (from sympy->torch==2.3.1)
  Downloading https://download.pytorch.org/whl/mpmath-1.3.0-py3-none-any.whl (536 kB)
    536.2/536.2 kB 2.5 MB/s eta 0:00:00
Collecting numpy<1.17.0 (from torch==2.3.1)
  Downloading https://download.pytorch.org/whl/numpy-1.17.0-cp312-cp312-win_amd64.whl (2.6 MB)
    2.6/2.6 MB 3.8 MB/s eta 0:00:00
Collecting filelock<3.13.1 (from torchvision==0.18.1)
  Downloading https://download.pytorch.org/whl/filelock-3.13.1-py3-none-any.whl (11 kB)
Collecting fsspec<2024.6.1 (from torch==2.3.1)
  Downloading https://download.pytorch.org/whl/fsspec-2024.6.1-py3-none-any.whl (177 kB)
Collecting networkx<3.3 (from torch==2.3.1)
  Downloading https://download.pytorch.org/whl/networkx-3.3-py3-none-any.whl (1.7 MB)
    1.7/1.7 MB 0.6 MB/s eta 0:00:00
Collecting tbb<2021.6 (from torch==2.3.1)
  Downloading https://download.pytorch.org/whl/tbb-2021.6-cp312-cp312-win_amd64.whl (12.6 MB)
    12.6/12.6 MB 2.1 MB/s eta 0:00:00
Installing collected packages: tbb, mpmath, intel-openmp, typing_extensions, sympy, pillow, numpy, networkx, mkl, MarkupSafe, fsspec, filelock, jinja2, torch, torchvision, torchau
dios
Successfully installed MarkupSafe-2.1.5 filelock-3.13.1 fsspec-2024.6.1 intel-openmp-2021.4.0 jinja2-3.1.4 mkl-2021.4.0 mpmpath-1.3.0 networkx-3.3 numpy-1.17.0
PyTorch安装 - 4
```

```

# 测试安装是否正常
# 1. 进入python命令行
python
# 2. python命令行中输入一下命令
import torch
torch.__version__
torch.rand(2,3)
torch.rand(2,3).cuda()
torch.rand(2,3).to(device=torch.device('cuda'))
torch.cuda.is_available()
torch.cuda.device_count()

# 查看正常的numpy 版本
import numpy as np
np.__version__

(gpu_default) PS C:\Users\19410> python
Python 3.12.9 | packaged by Anaconda, Inc. | (main, Feb 6 2025, 18:49:16) [MSC v.1929 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license" for more information.
>>> import torch
>>> torch.__version__
'2.3.1+cu121'
>>> torch.rand(2,3)
tensor([[0.4298, 0.6132, 0.0386],
       [0.3292, 0.1240, 0.3015]])
>>> torch.rand(2,3).cuda()
tensor([[0.7835, 0.8066, 0.7745],
       [0.8585, 0.7237, 0.0405]], device='cuda:0')
>>> torch.rand(2,3).to(device=torch.device('cuda'))
tensor([[0.3078, 0.6172, 0.0839],
       [0.8576, 0.3886, 0.7814]], device='cuda:0')
>>> torch.cuda.is_available()
True
>>> torch.cuda.device_count()
1
>>>

>>> import numpy as np
>>> np.__version__
'1.26.4'

```

四、异常说明

4.1 Numpy 版本建议 1.x 版本，当 Numpy 版本为某些 2.x 的时候，会有异常提示

解决方案：重新安装 numpy： pip install numpy==1.26.4

NOTE：如果安装 numpy 其它 1.x 版本存在异常的时候，可以重试其它版本。或者尝试其它 2.x 的版本；

▼ Numpy 异常描述

Markdown

A module that was compiled using NumPy 1.x cannot be run in NumPy 2.2.4 as it may crash. To support both 1.x and 2.x versions of NumPy, modules must be compiled with NumPy 2.0. Some module may need to rebuild instead e.g. with 'pybind11>=2.12'.

If you are a user of the module, the easiest solution will be to downgrade to 'numpy<2' or try to upgrade the affected module.

```
We expect that some modules will need time to support NumPy 2
>>> torch.randn(2,3)
A module that was compiled using NumPy 1.x cannot be run in
NumPy 2.2.4 as it may crash. To support both 1.x and 2.x
versions of NumPy, modules must be compiled with NumPy 2.0.
Some module may need to rebuild instead e.g. with 'pybind11=2.12'.

If you are a user of the module, the easiest solution will be to
downgrade to 'numpy<2' or try to upgrade the affected module.
We expect that some modules will need time to support NumPy 2.

Traceback (most recent call last):
File "<stdin>", line 1, in <module>
    torch.randn(2,3)
File "D:\anaconda3\envs\cpu_default\lib\site-packages\torch\tensor.py", line 464, in __repr__
    return torch._tensor_str_.str(self, tensor_contents=tensor_contents)
File "D:\anaconda3\envs\cpu_default\lib\site-packages\torch\_tensor_str.py", line 697, in __str__
    return _str.intern(self, tensor_contents=tensor_contents)
File "D:\anaconda3\envs\cpu_default\lib\site-packages\torch\_tensor_str.py", line 617, in __str__.intern
    tensor_str = _tensor_str_(self, indent)
File "D:\anaconda3\envs\cpu_default\lib\site-packages\torch\_tensor_str.py", line 349, in __str__
    formatter = _Formatter(get_summarized_data(self) if summarize else self)
File "D:\anaconda3\envs\cpu_default\lib\site-packages\torch\_tensor_str.py", line 138, in __init__
    tensor_view, torch.isfinite(tensor_view) & tensor_view.ne(0)
D:\anaconda3\envs\cpu_default\lib\site-packages\torch\_tensor_str.py:138: UserWarning: Failed to initialize NumPy: _ARRAY_API not found (Triggered internally at ..\torch\src\util
\$\tensor_numpy.cpp:84.)
    tensor_view, torch.isfinite(tensor_view) & tensor_view.ne(0)
tensor([[0.1979, 0.7330, 0.1710],
        [0.3393, 0.4929, 0.9555]])
```