

创建基于AutoDL的GPU环境

配置环境——激活conda

*注意:

1. 系统盘较小请将大的数据存放于数据盘或网盘中，重置系统时数据盘和网盘中的数据不受影响

2. 清理系统盘请参考: <https://www.autodl.com/docs/qa/>

```
root@container-58c811ac3c-8a409067:~# conda activate base
```

```
CommandNotFoundError: Your shell has not been properly configured to use 'conda activate'.  
To initialize your shell, run
```

```
$ conda init <SHELL_NAME>
```

Currently supported shells are:

- bash
- fish
- tcsh
- xonsh
- zsh
- powershell

See 'conda init --help' for more information and options.

IMPORTANT: You may need to close and restart your shell after running 'conda init'.

1. 输入: `vim ~/.bashrc`
2. 在最后加上: `source /root/miniconda3/etc/profile.d/conda.sh`

```
# ... /etc/bash_completion
#fi
source /etc/profile
source /etc/autodl-motd
source /root/miniconda3/etc/profile.d/conda.sh
```

3. 设置高亮, 找到: `#force_color_prompt=yes`

```
xterm-color/ color_prompt=yes;;
esac

# uncomment for a colored prompt, if the terminal has the capability; turned
# off by default to not distract the user: the focus in a terminal window
# should be on the output of commands, not on the prompt
#force_color_prompt=yes

if [ -n "$force_color_prompt" ]; then
    if [ -x /usr/bin/tput ] && tput setaf 1 >&/dev/null; then
        # We have color support; assume it's compliant with Ecma-48
        # (ISO/IEC-6429). (Lack of such support is extremely rare, and such
        # a case would tend to support setf rather than setaf.)
        color_prompt=yes
    else
        color_prompt=
    fi
fi
```

删去#

```

esac

# uncomment for a colored prompt, if the user has a choice
# off by default to not distract the user
# should be on the output of commands, not on the prompt
force_color_prompt=yes

if [ -n "$force_color_prompt" ]; then
    if [ -x /usr/bin/tput ] && tput setaf > /dev/null; then
        # We have color support; assume it's supported unless
        # (ISO/IEC-6429). (Look for much

```

4. 重启终端，或者刷新（输入：`bash`）

```

root@container-58c811ac3c-8a409067:~# conda activate base
(base) root@container-58c811ac3c-8a409067:~#

```

5. 进入环境：`conda activate base`
6. 创建新环境：`conda create -n py38 python=3.8`
7. 进入新环境，输入：`conda activate py38`

根据不同框架和GPU的操作

下载pytorch地址：[Previous PyTorch Versions | PyTorch](#)

miniconda3框架+3090

框架名称	框架版本	Python版本	Cuda版本
Dragon	> conda3	> 3.8	10.0
Jittor	>		10.1
Miniconda	>		10.2
OneFlow	>		11.1
PaddlePaddle	>		✓ 11.3
PyTorch	>		
TensorFlow	>		

1. 安装pytorch，输入：`conda install pytorch torchvision torchaudio cudatoolkit=11.3 -c pytorch`
2. 安装其他包，输入：`pip install jupyter d2l`

miniconda3框架+2080ti

框架名称		框架版本		Python版本		Cuda版本
Dragon	>	conda3	>	3.8	>	10.0
Jittor	>					✓ 10.1
Miniconda	>					10.2
OneFlow	>					11.1
PaddlePaddle	>					11.3
PyTorch	>					
TensorFlow	>					

1. 安装pytorch, 输入: `conda install pytorch==1.7.0 torchvision==0.8.0 torchaudio==0.7.0 cudatoolkit=10.1 -c pytorch`
2. 安装其他包, 输入: `pip install jupyter d2l`

pytorch框架+2080ti

(base自带pytorch, 但是最好用自己创建的py38)

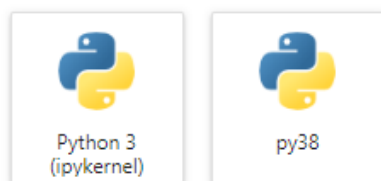
框架名称		框架版本		Python版本		Cuda版本
Dragon	>	1.1.0	>	3.8	>	✓ 11.0
Jittor	>	1.10.0	>			
Miniconda	>	1.5.1	>			
OneFlow	>	1.6.0	>			
PaddlePaddle	>	1.7.0	>			
PyTorch	>	1.8.1	>			
TensorFlow	>	1.9.0	>			

1. 安装pytorch, 输入: `conda install pytorch==1.7.0 torchvision==0.8.0 torchaudio==0.7.0 cudatoolkit=11.0 -c pytorch`
2. 安装其他包, 输入: `pip install jupyter d2l`

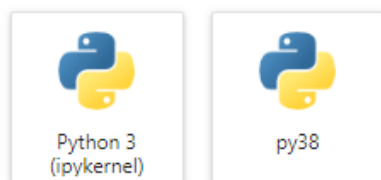
jupyter页面更新

1. 在py38环境中, 输入: `conda install ipykernel`
2. 输入: `ipython kernel install --user --name=py38`

Notebook



控制台



其他



xftp上传文件

潮汐算力属性

?

×

常规

选项

站点

名称(N):

潮汐算力

主机(H):

region-6.autodl.com

协议(R):

SFTP

设置(S)...

端口号(O):

53642

代理服务器(X):

<无>

浏览(W)...

说明(D):

登录

☐ 匿名登录(A)

☐ 使用身份验证代理(G)

方法(M):

☒ Password

☐ Public Key

☐ Keyboard Interactive

☐ GSSAPI

☐ PKCS11

☐ CAPI

设置(T)...

上移(V)

下^ (E)

用户名(U):

root

密码(P):

●●●●●●●●

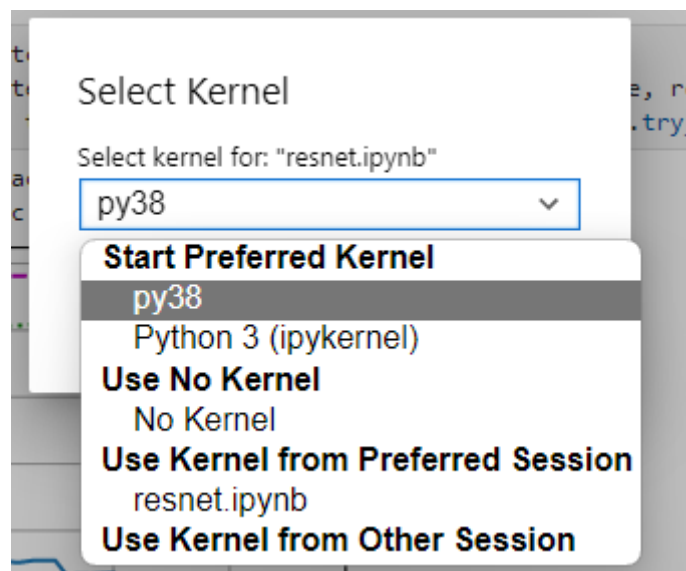
连接

确定

取消

测试用例

使用py38内核



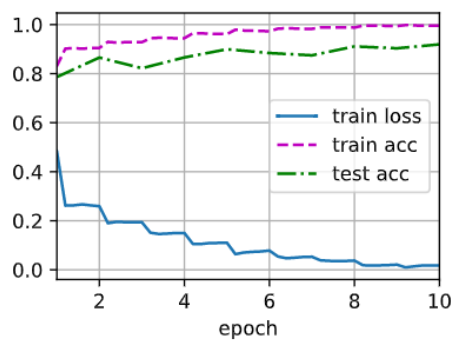
成功

[训练模型]

同之前一样，我们在Fashion-MNIST数据集上训练ResNet。

```
In [9]: lr, num_epochs, batch_size = 0.05, 10, 256
train_iter, test_iter = d2l.load_data_fashion_mnist(batch_size, resize=96)
d2l.train_ch6(net, train_iter, test_iter, num_epochs, lr, d2l.try_gpu())
```

loss 0.018, train acc 0.995, test acc 0.919
2185.7 examples/sec on cuda:0

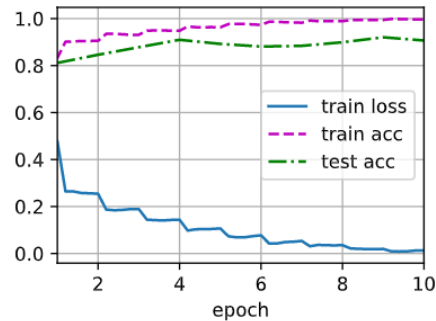


[训练模型]

同之前一样，我们在Fashion-MNIST数据集上训练ResNet。

```
[9]: lr, num_epochs, batch_size = 0.05, 10, 256
train_iter, test_iter = d2l.load_data_fashion_mnist(batch_size, resize=96)
d2l.train_ch6(net, train_iter, test_iter, num_epochs, lr, d2l.try_gpu())
```

loss 0.013, train acc 0.996, test acc 0.907
3244.1 examples/sec on cuda:0

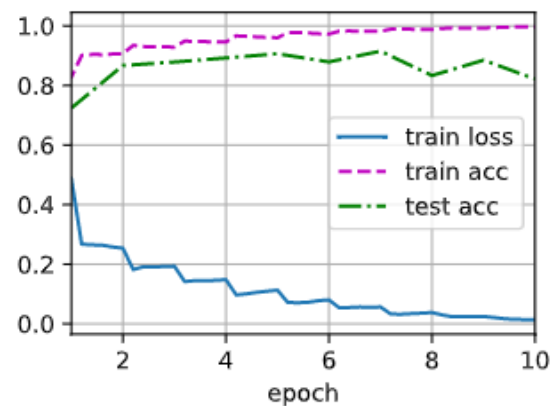


小结

同之前一样，我们在Fashion-MNIST数据集上训练ResNet。

```
[9]: lr, num_epochs, batch_size = 0.05, 10, 256
train_iter, test_iter = d2l.load_data_fashion_mnist(batch_size, resize=96)
d2l.train_ch6(net, train_iter, test_iter, num_epochs, lr, d2l.try_gpu())
```

loss 0.014, train acc 0.996, test acc 0.822
6457.6 examples/sec on cuda:0



安装Anaconda

anaconda[使用配置说明](#)（只做参考）

安装Anaconda

([Index of /anaconda/archive/](#) | [清华大学开源软件镜像站](#) | Tsinghua Open Source Mirror)

1. 下载最新版的Anaconda（对python可以向下兼容），点击安装

2. 选择加入path, 不选择register anaconda as my default (这样Anaconda用的python和系统无关)

```
命令提示符 - python
Microsoft Windows [版本 10.0.22598.200]
(c) Microsoft Corporation. 保留所有权利。

C:\Users\wry>python
Python 3.8.10 (tags/v3.8.10:3d8993a, May 3 2021, 11:48:03) [MSC v.1928 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>> _
```

配置Anaconda

1. 开始 -> anaconda navigator可以成功启动, 表明安装成功。
开始 -> 右键点击anaconda prompt, 以管理员身份运行。输入 `conda list`, 可以查看已经安装的包名和版本号。若结果正常显示, 表明安装成功。
2. 点击进入Anaconda Prompt (Anaconda)。
3. 输入 `conda --version`, 检测conda环境。

```
Anaconda Prompt (Anaconda)

(base) C:\Users\wry>conda --version
conda 4.12.0

(base) C:\Users\wry>
```

4. 输入 `conda info`, 查看是否成功。

```
(base) C:\Users\wry>conda info

active environment : base
active env location : D:\Anaconda
shell level : 1
user config file : C:\Users\wry\.condarc
populated config files : C:\Users\wry\.condarc
conda version : 4.12.0
conda-build version : 3.21.8
python version : 3.9.12.final.0
virtual packages : __cuda=11.1=0
                  __win=0=0
                  __archspec=1=x86_64
base environment : D:\Anaconda (writable)
conda av data dir : D:\Anaconda\etc\conda
conda av metadata url : None
channel URLs : https://repo.anaconda.com/pkgs/main/win-64
               https://repo.anaconda.com/pkgs/main/noarch
               https://repo.anaconda.com/pkgs/r/win-64
               https://repo.anaconda.com/pkgs/r/noarch
               https://repo.anaconda.com/pkgs/msys2/win-64
               https://repo.anaconda.com/pkgs/msys2/noarch
package cache : D:\Anaconda\pkgs
                 C:\Users\wry\.conda\pkgs
                 C:\Users\wry\AppData\Local\conda\conda\pkgs
envs directories : D:\Anaconda\envs
                   C:\Users\wry\.conda\envs
```

5. 输入 `conda update conda`, 更新conda包 (国内网络即可)。
6. 输入 `conda update --all`, 更新所有包 (国内网络即可)。

构建环境

1. 点击进入Anaconda Prompt (Anaconda)。
2. 输入 `conda create -n iec_wry python=3.6.5` , 创建基于python3.6.5版本的环境
3. 输入 `conda env list` , 查看环境列表 (环境项目在 `D:\Anaconda\envs` 下)

```
(base) C:\Users\wry>conda env list
# conda environments:
#
base                  *  D:\Anaconda
iec_wry               D:\Anaconda\envs\iec_wry
```

4. 输入 `conda activate iec_wry` , 激活环境

Note:

1. 如果要删除环境, 输入 `conda remove -n iec_wry --all`
2. 如果要查找环境下的包, 在当前环境下输入 `conda list`
3. 如果要安装包, `conda install package_name[=x.x.x]` 或者 `pip install package_name[=x.x.x]`
4. 如果要更新包, `conda update package_name` 或者 `pip update package_name`
5. 如果要卸载包, `conda uninstall package_name` 或者 `pip uninstall package_name`

其他问题

1. python环境没有激活

```
C:\Users\wry>python
Python 3.9.12 (main, Apr  4 2022, 05:22:27) [MSC v.1916 64 bit (AMD64)] :: Anaconda, Inc. on win32

Warning:
This Python interpreter is in a conda environment, but the environment has
not been activated. Libraries may fail to load. To activate this environment
please see https://conda.io/activation

Type "help", "copyright", "credits" or "license" for more information.
>>> _
```

解决 (必须在base环境下才能使用此python)

```
C:\WINDOWS\system32\cmd.exe - python
Microsoft Windows [版本 10.0.22598.200]
(c) Microsoft Corporation. 保留所有权利。

C:\Users\wry>conda info --envs
# conda environments:
#
base                  *  D:\Anaconda

C:\Users\wry>conda activate D:\Anaconda

(base) C:\Users\wry>python
Python 3.9.12 (main, Apr  4 2022, 05:22:27) [MSC v.1916 64 bit (AMD64)] :: Anaconda, Inc. on win32
Type "help", "copyright", "credits" or "license" for more information.
>>>
```

2. 没有Anaconda Navigator

解决：开始菜单中找不到anaconda navigator的解决办法



安装Ubuntu

1. 安装Ubuntu Serve

(Ubuntu 18.04 LTS Server 版安装图文教程)

注意：使用桥接模式-Realtek PCIe网卡

虚拟网络编辑器
✕

名称	类型	外部连接	主机连接	DHCP	子网地址
VMnet0	桥接模式	Realtek PCIe GbE Family Contr...	-	-	-
VMnet1	仅主机...	-	已连接	已启用	192.168.179.0
VMnet8	NAT 模式	NAT 模式	已连接	-	192.168.254.0

添加网络(E)...
移除网络(O)
重命名网络(W)...

VMnet 信息

☒ 桥接模式(将虚拟机直接连接到外部网络)(B)

已桥接至(G): Realtek PCIe GbE Family Controller

自动设置(U)...

☐ NAT 模式(与虚拟机共享主机的 IP 地址)(N)

NAT 设置(S)...

☐ 仅主机模式(在专用网络内连接虚拟机)(H)

☐ 将主机虚拟适配器连接到此网络(V)

主机虚拟适配器名称: VMware 网络适配器 VMnet0

☐ 使用本地 DHCP 服务将 IP 地址分配给虚拟机(D)

DHCP 设置(P)...

子网 IP (I): . . .
子网掩码(M): . . .

还原默认设置(R)
导入(T)...
导出(X)...
确定
取消
应用(A)
帮助

2. 配置Ubuntu

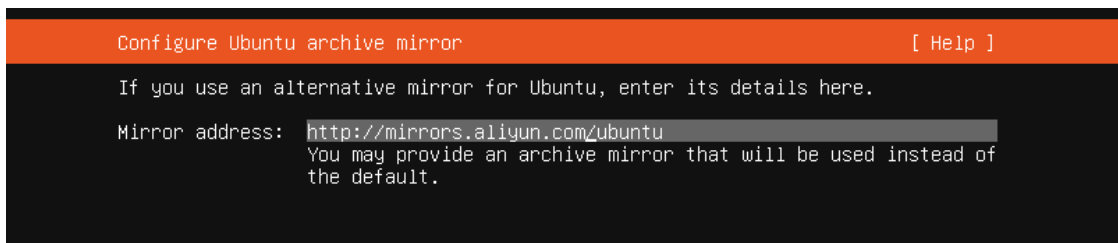
1. 获取网络信息：192.168.2.14/24（但是端口依然是22）

Network connections [Help]

Configure at least one interface this server can use to talk to other machines, and which preferably provides sufficient access for updates.

NAME	TYPE	NOTES
[ens32	eth	- ▶]
DHCPv4 192.168.2.14/24		
00:0c:29:7e:48:ff / Intel Corporation / 82545EM Gigabit Ethernet Controller (Copper) (PRO/1000 MT Single Port Adapter)		
[Create bond ▶]		

2. 配置镜像源：<http://mirrors.aliyun.com/ubuntu>

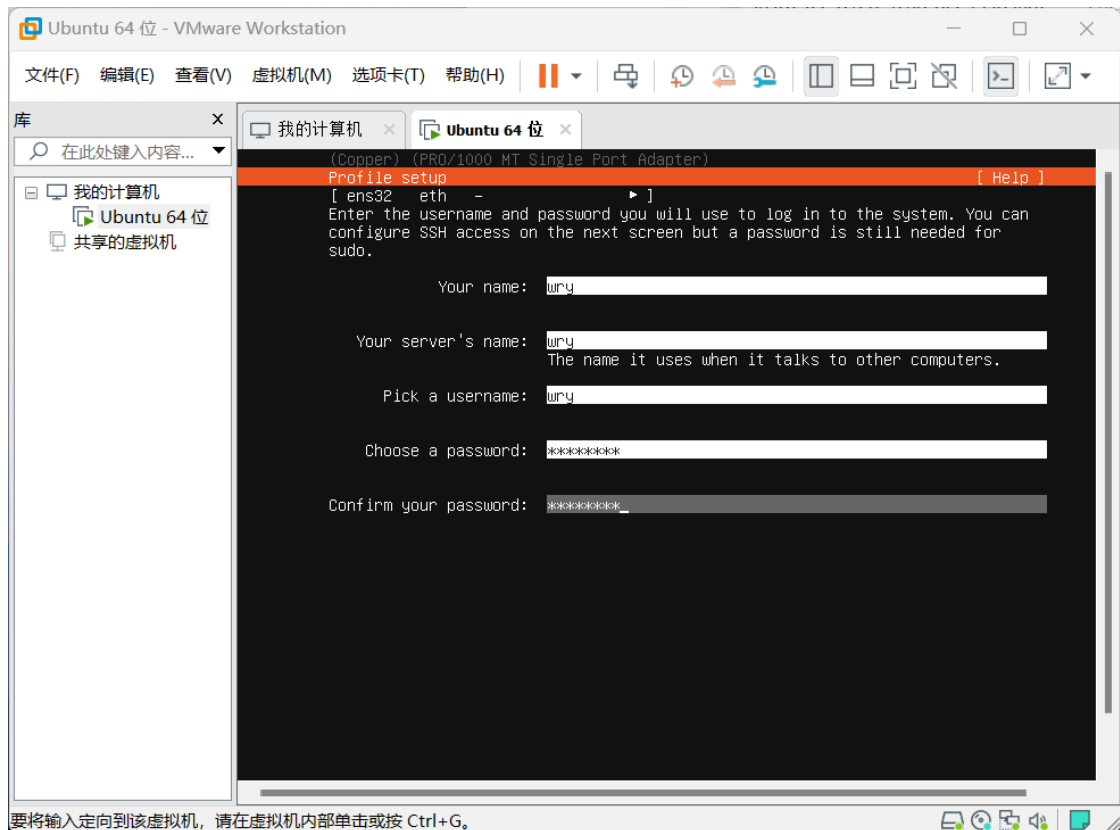


3. 点击upgrade

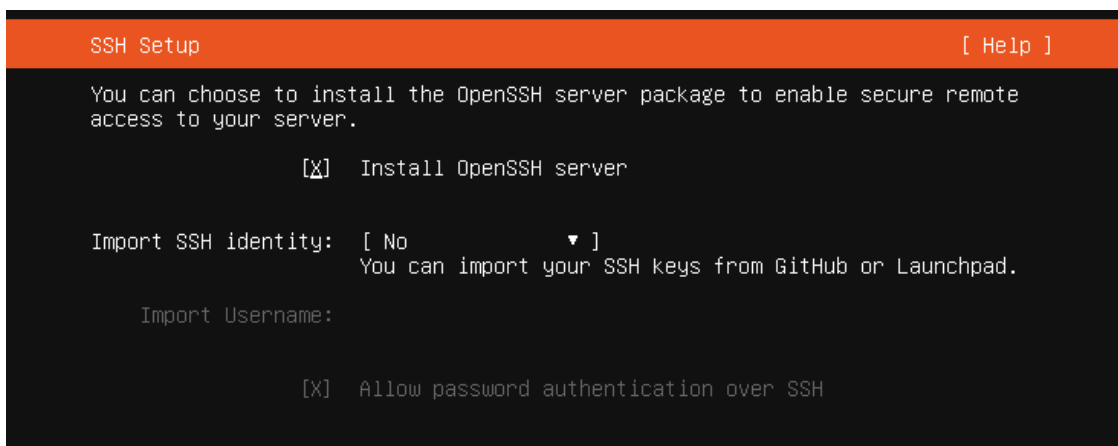
4. 配置用户信息

用户名: wry

密码: admin123



5. 勾选openssh



3. 配置ssh环境

(Ubuntu18配置连接xshell)

依次输入: `sudo apt install net-tools`

`sudo apt-get install openssh-server`

`sudo ufw allow 22`

4. 连接xshell和xftp

注意: 端口一直为22

连接

常规

名称(N):

虚拟机-ubuntu

协议(P):

SSH

主机(H):

192.168.2.14

端口号(O):

22

说明(D):

重新连接

☐ 连接异常关闭时自动重新连接(A)

安装miniconda3 (李沐)

配置虚拟机

(用Ubuntu子系统下载安装Miniconda3 (小白版) , 包含多种操作)

1. 输入: `sudo apt update` , 更新环境
2. 输入: `sudo apt install build-essential`
3. 配置python3.8环境, 输入: `sudo apt install python3.8`
4. 下载miniconda3, 输入: `wget`
`https://mirrors.tuna.tsinghua.edu.cn/anaconda/miniconda/Miniconda3-latest-Linux-x86_64.sh`

5. 安装miniconda3, 输入: `bash Miniconda3-latest-Linux-x86_64.sh`
6. 进入base环境, 输入: `bash`
7. 安装必要的包, 输入: `pip install jupyter d2l torch torchvision`
(貌似配置了清华源之后不用挂外网)

(pytorch镜像: `pip install torch torchvision -i http://mirrors.aliyun.com/pypi/simple/ --trusted-host mirrors.aliyun.com`)

(豆瓣源: `-i http://pypi.douban.com/simple/ --trusted-host pypi.douban.com`)

(配置清华源:

```
conda config --add channels
https://mirrors.tuna.tsinghua.edu.cn/anaconda/pkgs/free/
conda config --add channels
https://mirrors.tuna.tsinghua.edu.cn/anaconda/pkgs/main/
conda config --add channels
https://mirrors.tuna.tsinghua.edu.cn/anaconda/cloud/conda-forge/
conda config --add channels
https://mirrors.tuna.tsinghua.edu.cn/anaconda/cloud/bioconda/
conda config --set show_channel_urls yes
```

)

清华: <https://pypi.tuna.tsinghua.edu.cn/simple>

阿里云: <https://mirrors.aliyun.com/pypi/simple/>

中国科技大学: <https://pypi.mirrors.ustc.edu.cn/simple/>

`pip install xxx -i`

8. 下载测试用例: `wget https://zh-v2.d2l.ai/d2l-zh.zip`
9. 下载解压包, 输入:
10. 解压, 输入: `unzip d2l-zh.zip`
11. 进入pytorch版本, 输入: `cd pytorch/`
退出, 输入: `cd ..`
12. 连接git, 输入: `git clone https://github.com/d2l-ai/d2l-zh-pytorch-slides`

连接虚拟机和本地

1. 开启虚拟机的jupyter, 输入: `jupyter notebook`
2. 打开本地cmd, 输入: `ssh -L8888:localhost:8888 wry@192.168.2.14`, 再输入对应密码
3. 点击虚拟机中的localhost地址, 能在本地浏览器中访问虚拟机的jupyter

4. 本地cmd中安装插件，用来解析幻灯片格

5. 式，输入： `pip install rise`

```
(base) wry@wry:~$ pip install rise
Collecting rise
  Downloading rise-5.7.1-py2.py3-none-any.whl (4.3 MB)
    | 2.3 MB 47 kB/s eta 0:00:43
```

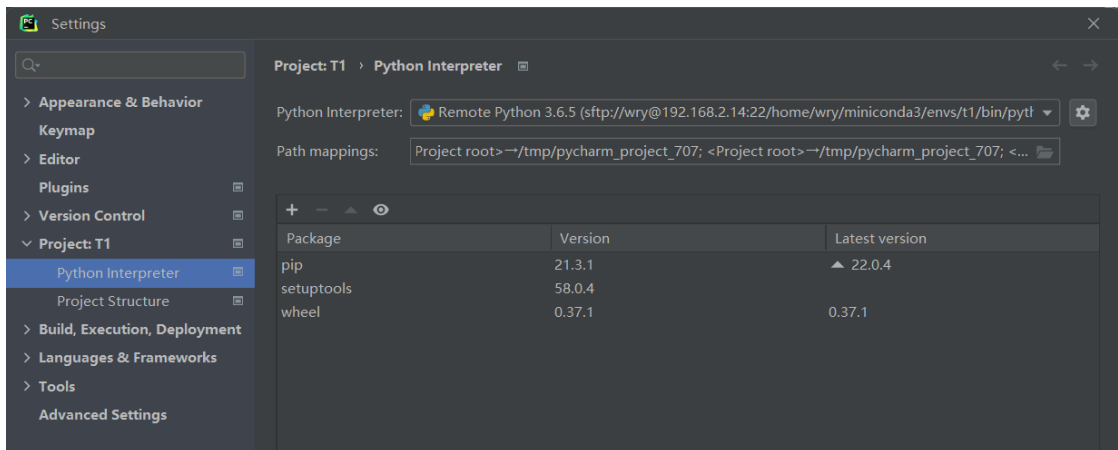
配置环境

虚拟环境中创建新环境

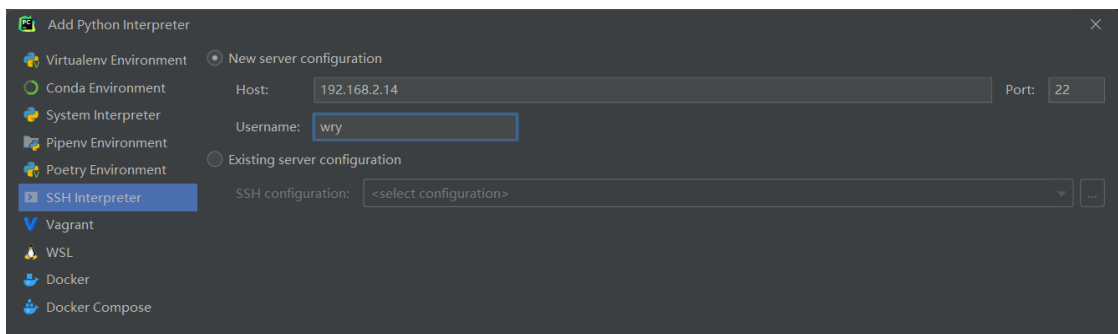
1. 创建环境，输入： `conda create -n t1 python=3.6.5`
2. 检测环境，输入： `conda env list`
3. 激活环境，输入： `conda activate t1`

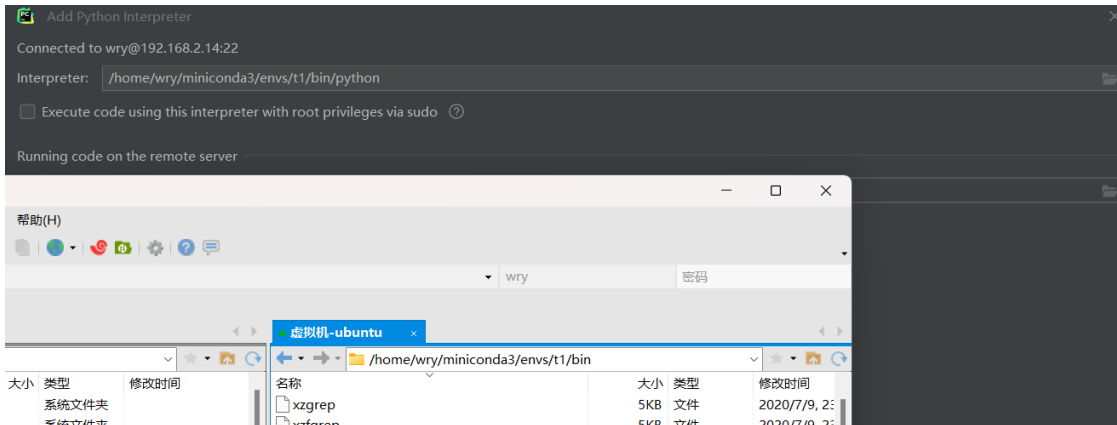
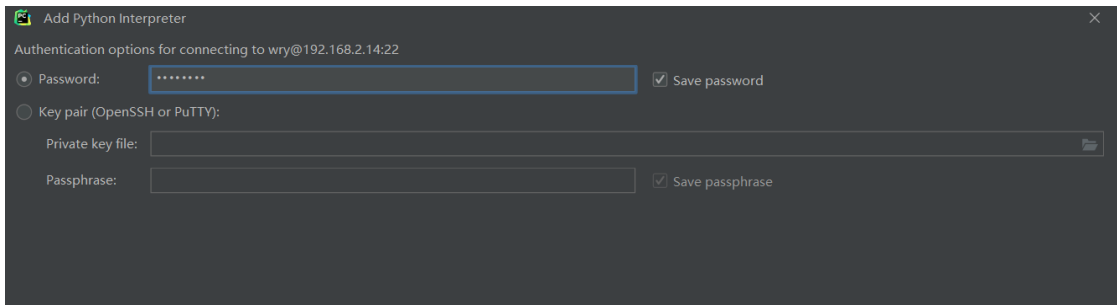
pycharm连接远程pycharm

1. 进入settings



2. 配置设置





3. 配置成功

Note

1. 授权wry进入root文件夹的权限

```
wry@wry:~$ sudo chown -R wry:wry /root
[sudo] password for wry:
wry@wry:~$
```

输入: `sudo chown -R wry:wry /root`

2. 进入root环境

输入: `su root`

如果发生错误, 提示Authentication failure, 则按照下面步骤:

1. 输入: `sudo passwd root`
2. 输入: `su`
3. 成功进入root


```
wry@wry:~$ su root
Password:
su: Authentication failure
wry@wry:~$ su
Password:
su: Authentication failure
wry@wry:~$ sudo passwd root
Enter new UNIX password:
Retype new UNIX password:
passwd: password updated successfully
wry@wry:~$ su
Password:
root@wry:/home/wry# su root
```

3. GPU安装

(补充: 安装英伟达驱动: [CUDA Toolkit 11.6 Update 2 Downloads | NVIDIA Developer](#), 将其提供的代码输一遍即可(虽然我失败了.....))

4. 配置链接

设置路径, 输入: `echo ". /root/miniconda3/etc/profile.d/conda.sh" >> ~/.bashrc`

设置软连接, 输入: `sudo ln -s /root/miniconda3/etc/profile.d/conda.sh /etc/profile.d/conda.sh`

(每次进入root账户自动执行, 输入: `echo "conda activate" >> ~/.bashrc`)

输入: `source .bashrc`

5. 修改python

1. 配置root环境: `sudo passwd root`

2. 进入root环境: `su root`

3. 配置python3.6.5环境

输入: `sudo apt install python3.6`

更新系统, 输入: `sudo apt-get update`

执行安装, 输入: `sudo apt-get install python3.6`

输入: `python`

(如果不全是3.6.5, 则继续后面步骤)

查看python指向, 输入: `sudo ls -l /usr/bin | grep python`

删除原有python软连接, 输入: `sudo rm /usr/bin/python`

修改python指向python3.6, 输入: `sudo ln -s /usr/bin/python3.6 /usr/bin/python`

更新ppa, 输入: `sudo add-apt-repository ppa:deadsnakes/ppa`

更新系统, 输入: `sudo apt-get update`

安装pip, 输入: `sudo apt-get install python3.6-pip`

建立pip到pip3的软连接, 输入: `sudo ln -s /usr/bin/pip3 /usr/bin/pip`

查看pip版本, 输入: `pip --version`

6. 注册Nvidia



7. 本地安装

安装pytorch ([conda install pytorch安装缓慢的解决办法](#))

```
conda install pytorch==1.7.1 torchvision==0.8.2 torchaudio==0.7.2
                        cudatoolkit=10.1
```

(pytorch需要单独用install下载, 不然会很慢)

```
pip install jupyter d2l -i http://pypi.douban.com/simple/ --trusted-host
pypi.douban.com
```

挂外网下载

```
Linear output shape: torch.Size([1, 10])
```

[训练模型]

同之前一样，我们在Fashion-MNIST数据集上训练ResNet。

```
In [*]: lr, num_epochs, batch_size = 0.05, 10, 256
train_iter, test_iter = d2l.load_data_fashion_mnist(batch_size, resize=96)
d2l.train_ch6(net, train_iter, test_iter, num_epochs, lr, d2l.try_gpu())

Downloading http://fashion-mnist.s3-website.eu-central-1.amazonaws.com/train-images-idx3-ubyte.gz to ../data/FashionMNIST\raw\train-images-idx3-ubyte.gz

92.8%
```

小结

进入jupyter，输入：`jupyter notebook`

8.允许root

```
# Local IP addresses (such as 127.0.0.1 and ::1) are allowed as 1
# along with hostnames configured in local_hostnames.
# Default: False
# c.NotebookApp.allow_remote_access = False

## Whether to allow the user to run the notebook as root.
# Default: False
c.NotebookApp.allow_root = True

## Answer yes to any prompts.
# See also: JupyterApp.answer_yes
# c.NotebookApp.answer_yes = False

## "
```