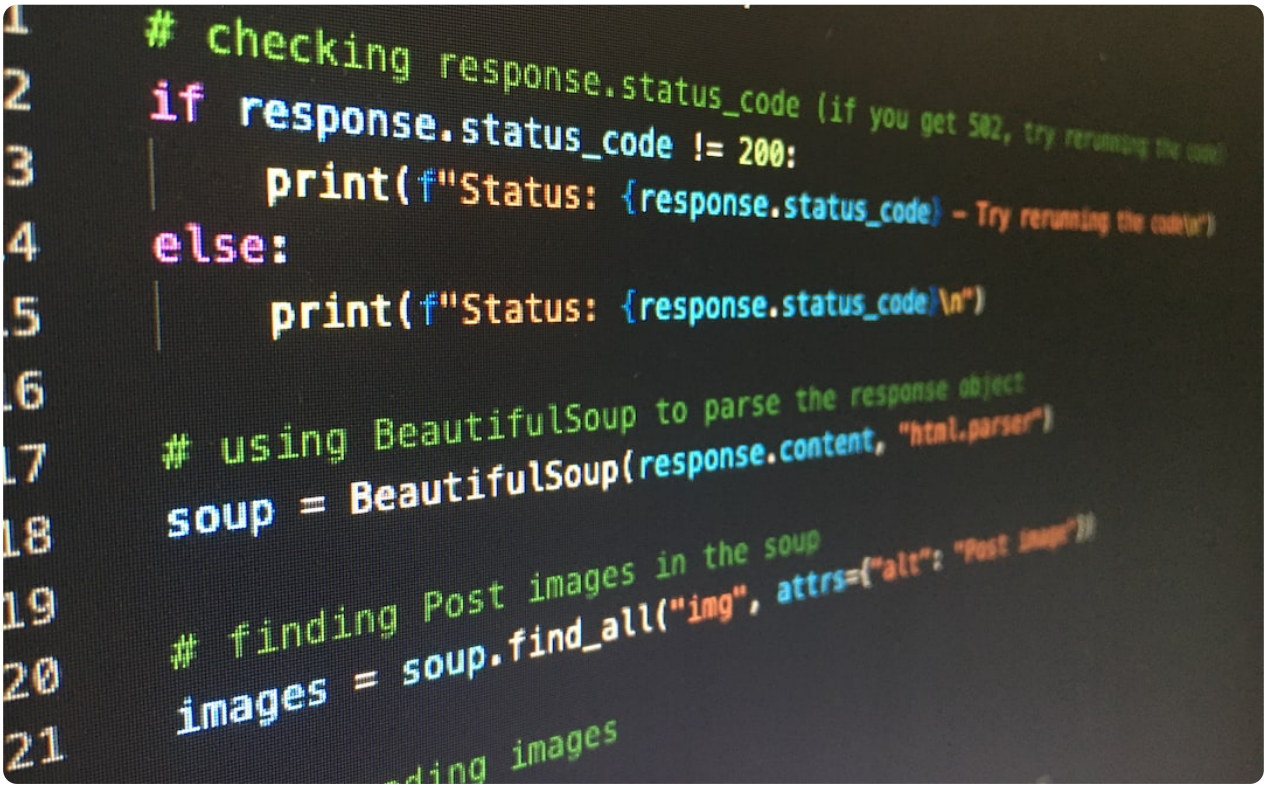
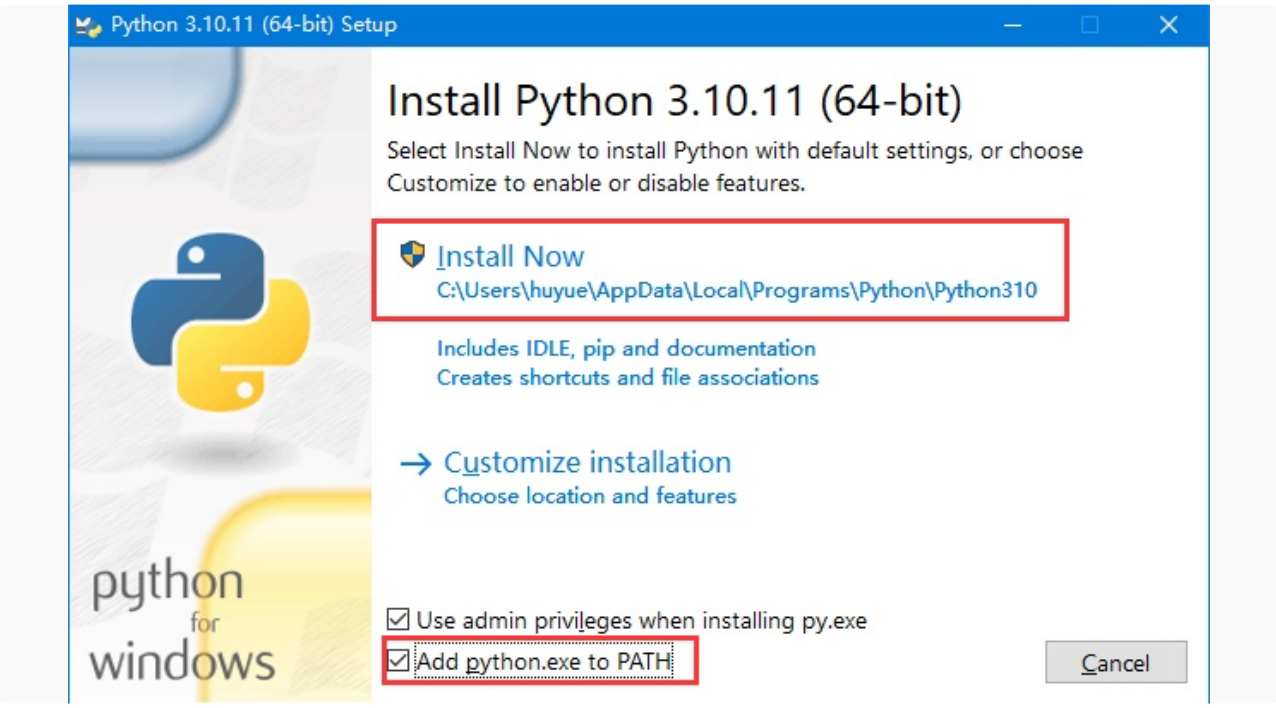


OpenCV 开发环境搭建

安装 Python

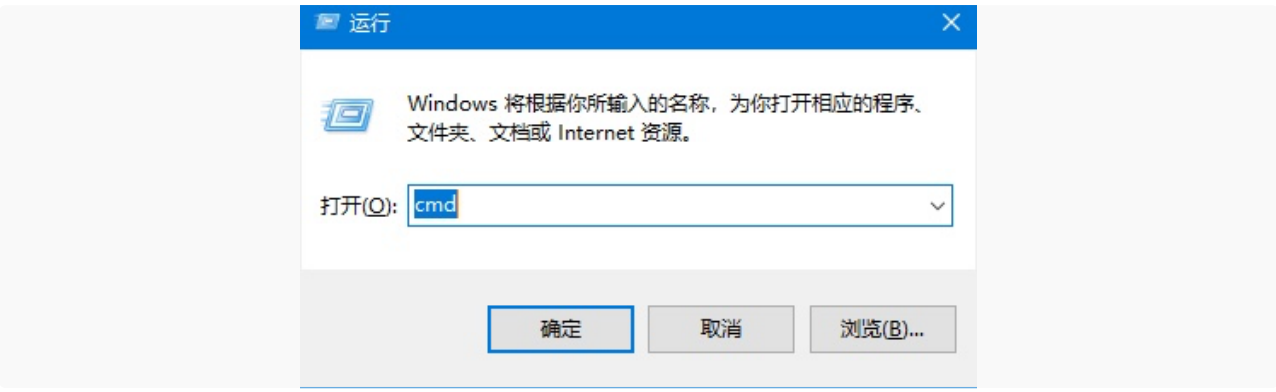
安装

从 Python 官网下载最新版本 Python3 安装文件，Windows64位 3.10.11 版本可点此下载。下载完成后，双击安装文件开始安装。勾选 `Add python.exe to PATH`，方便后续在命令行中使用 Python，点击 `Install Now`，等待安装完成。

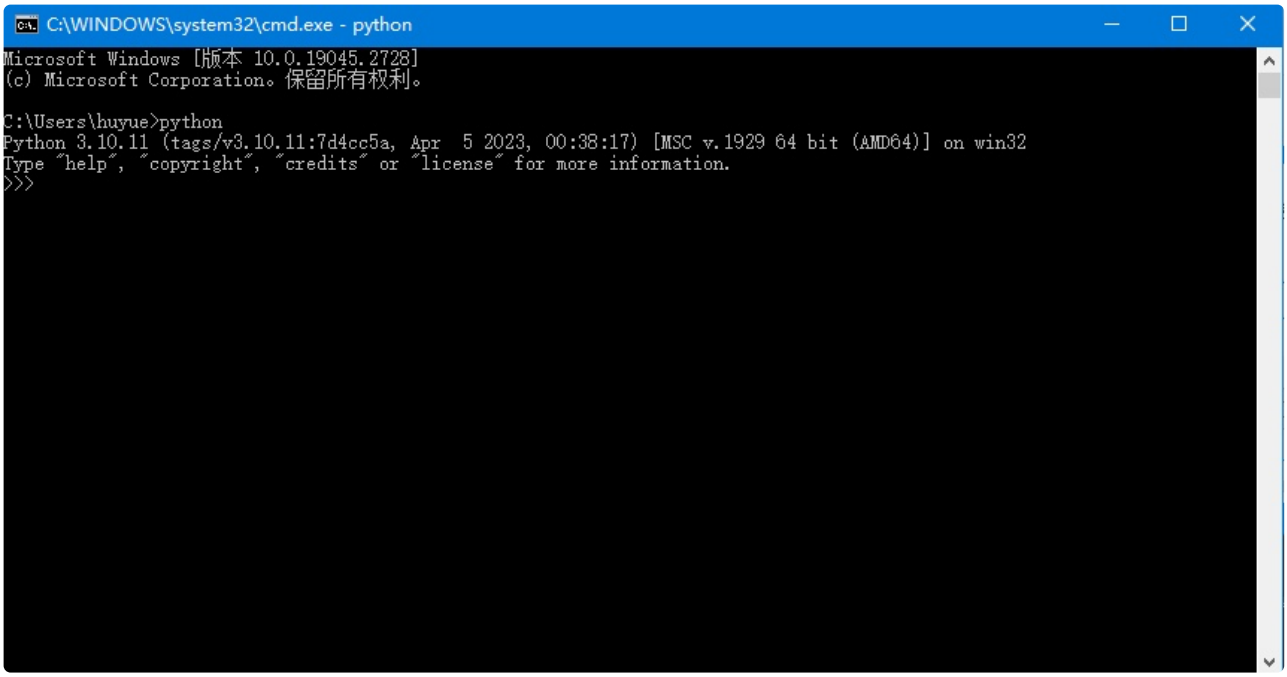


验证

安装完成后，按 `Win+R` 后输入 cmd 打开 windows 命令行工具。



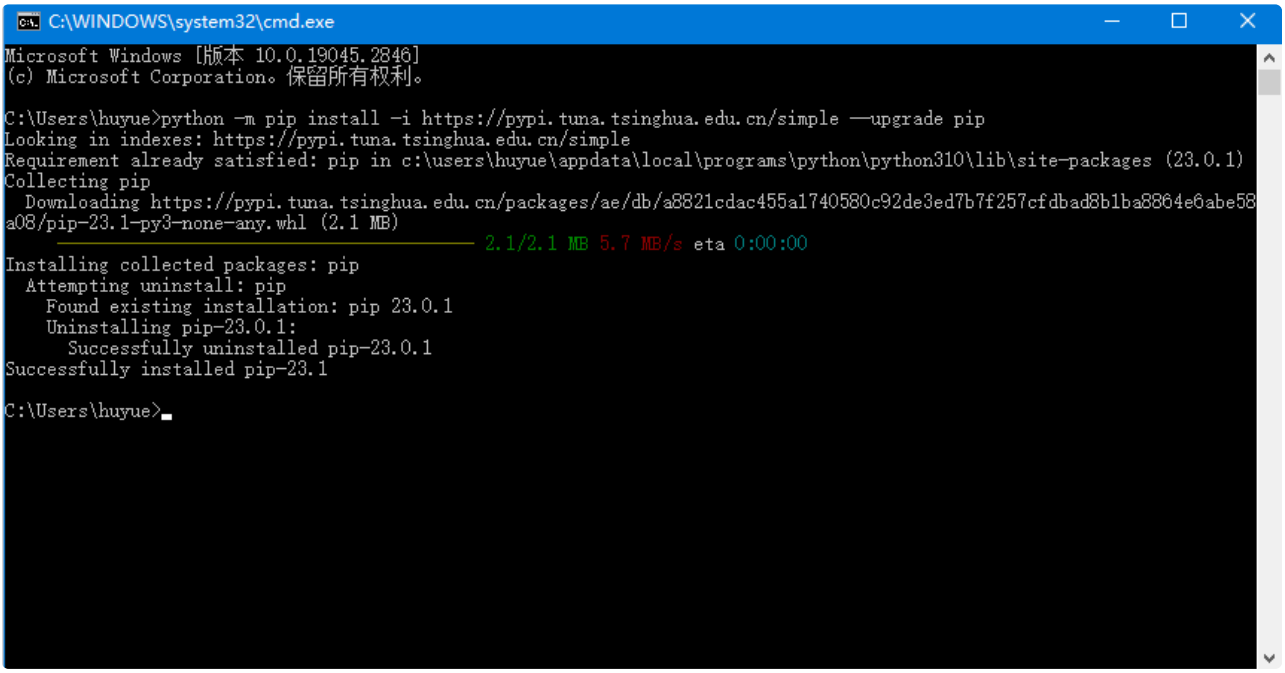
提示符后输入 python，回车，出现以下界面表示 Python 安装成功。



修改pypi源

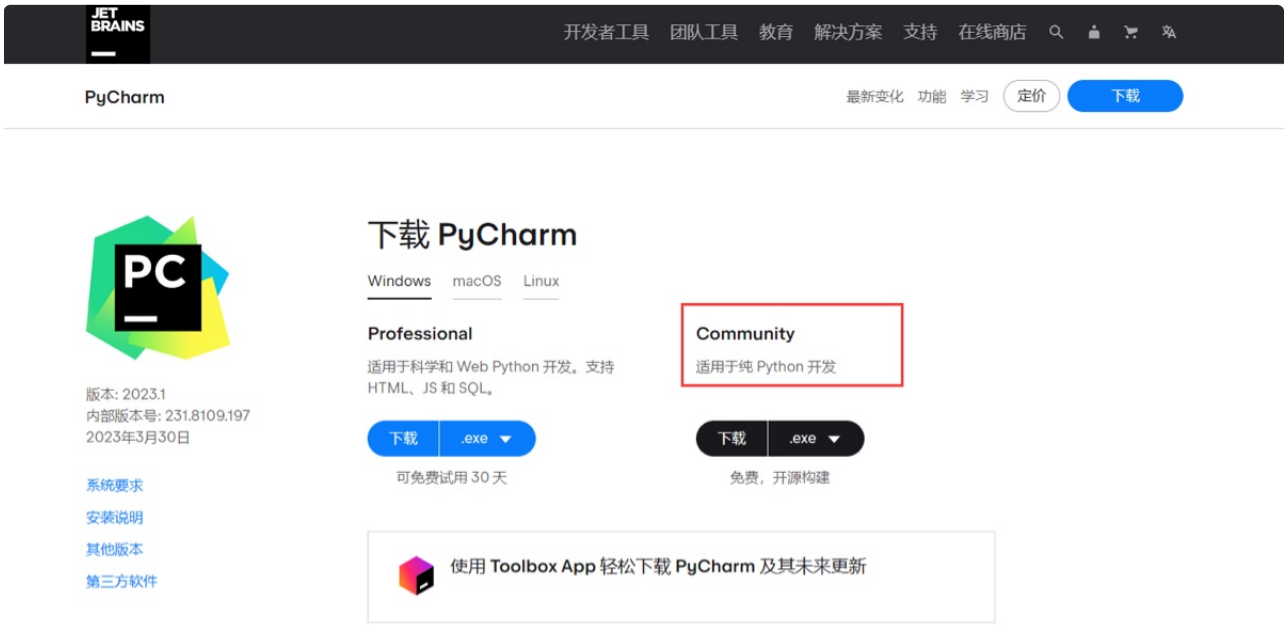
默认的pypi源访问速度较慢，我们可以在命令行中(windows cmd界面，非python解释器界面)执行以下命令替换为清华大学pypi源，提升依赖包下载速度。

```
python -m pip install -i https://pypi.tuna.tsinghua.edu.cn/simple --upgrade pip
pip config set global.index-url https://pypi.tuna.tsinghua.edu.cn/simple
```



安装 PyCharm IDE

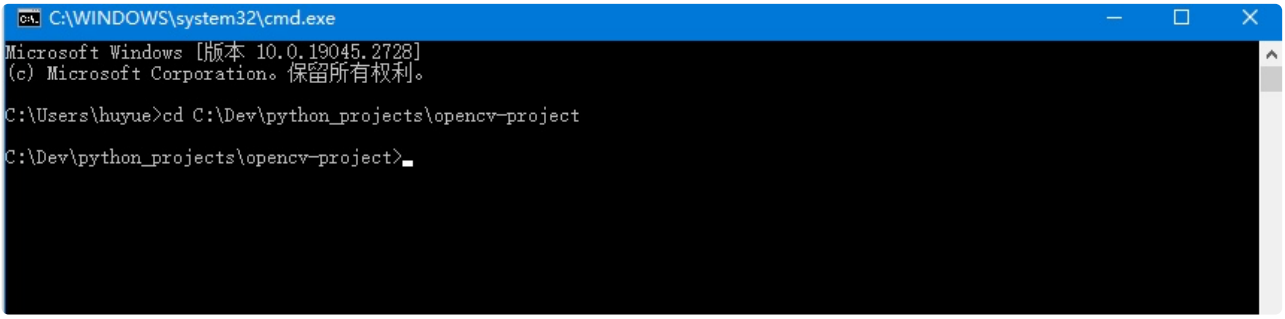
本课程使用 PyCharm IDE 作为 Python 开发工具，登录 Jetbrains 官网下载 PyCharm Community 版本。下载链接。按照默认选项安装即可。



创建 OpenCV 工程

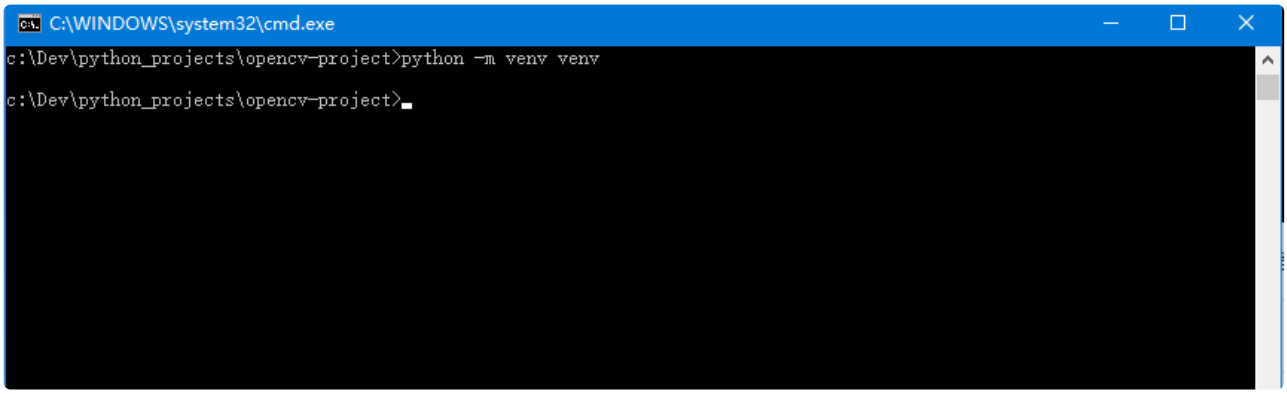
安装依赖

在合适位置创建工程目录（工程文件夹），比如 `C:\Dev\python_projects\opencv-project`，在命令行中输入以下命令跳转到工程目录：

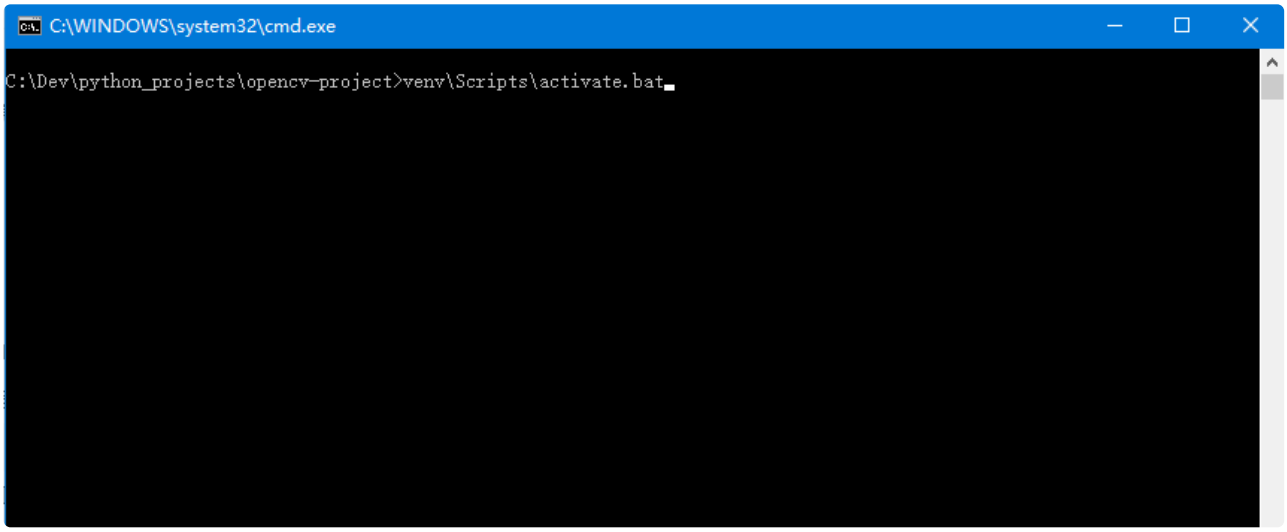


跳转到该目录后，执行以下命令创建 Python 虚拟开发环境（以下简称 venv）

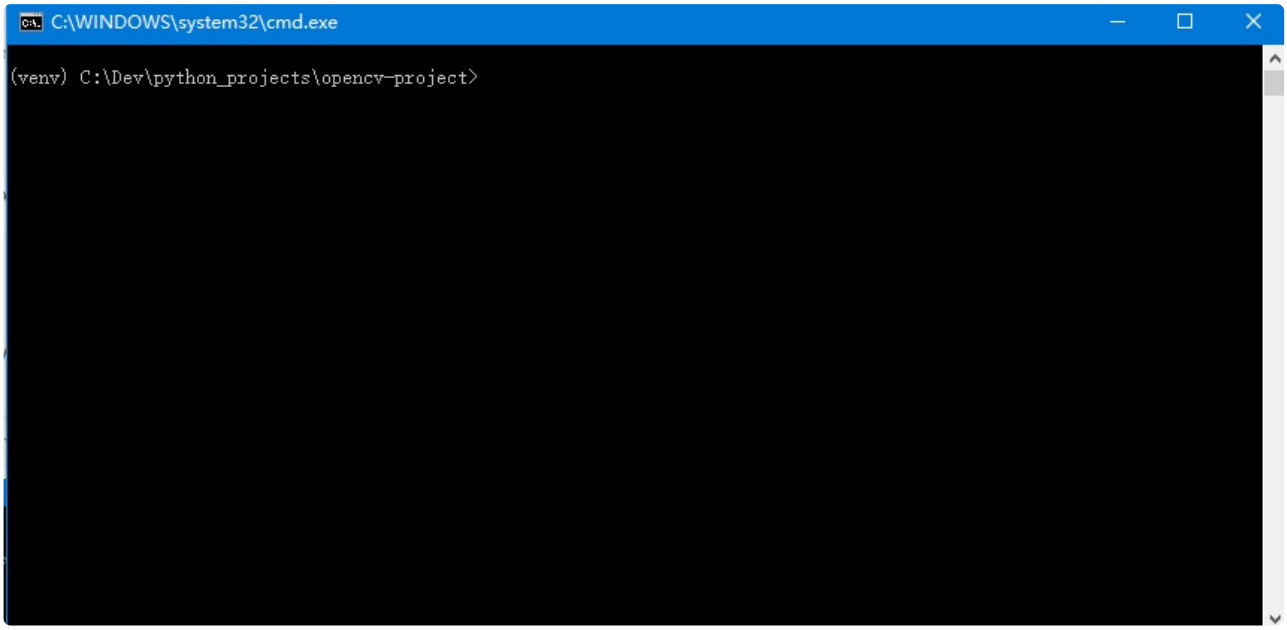
```
python -m venv venv
```



创建完成后，执行`venv\Scripts\activate.bat`激活venv

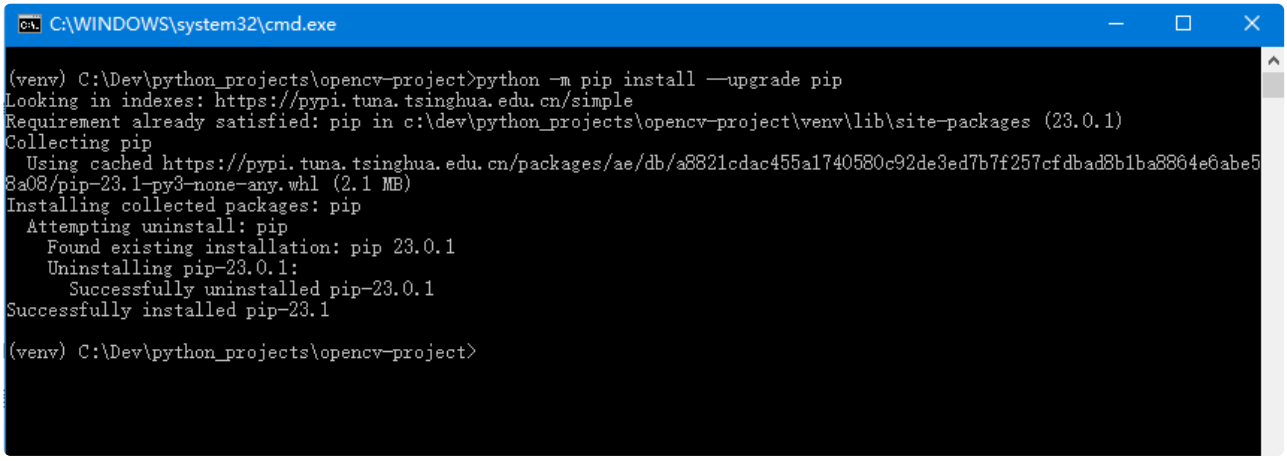


弹出以下类似窗口表示环境激活成功



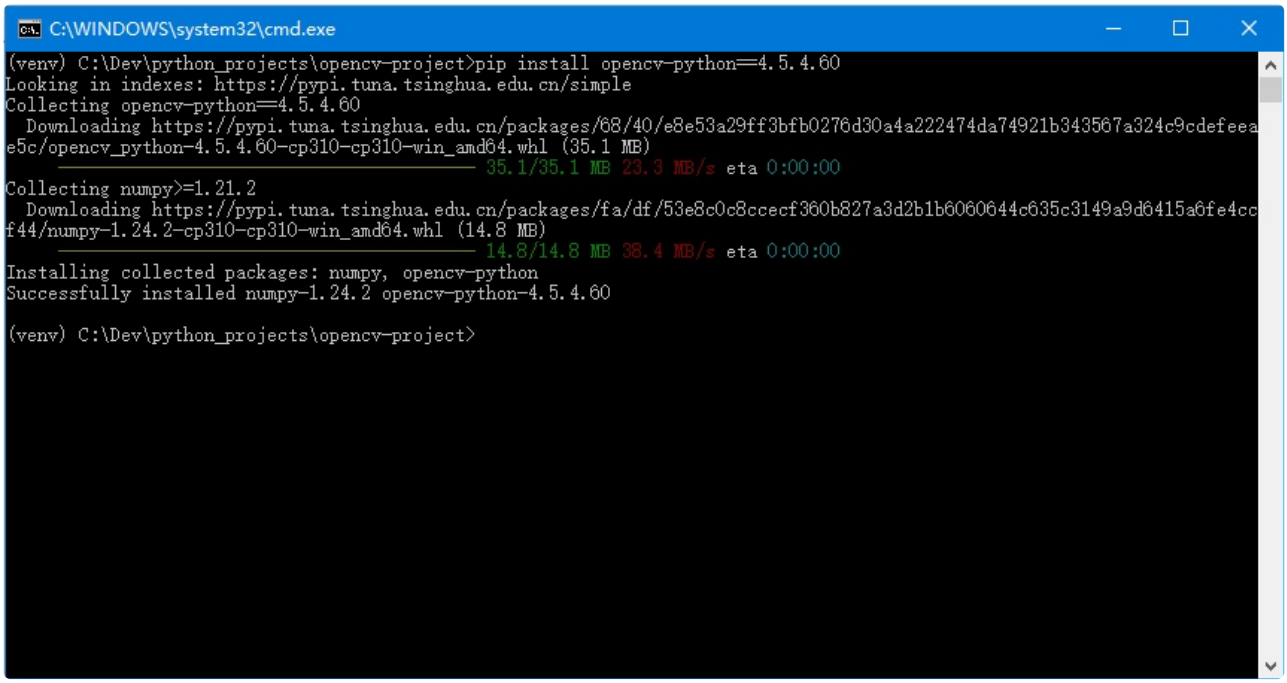
在venv窗口中输入以下命令更新pip

```
python -m pip install --upgrade pip
```



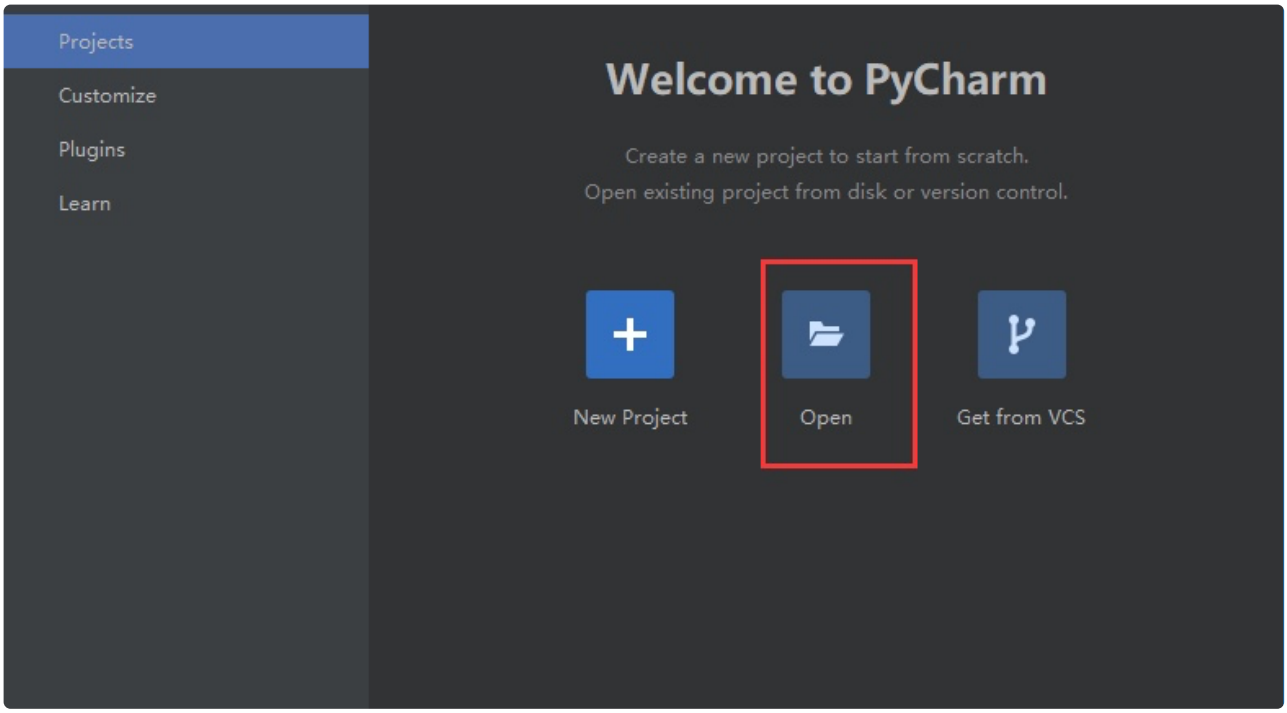
在venv窗口中输入以下命令安装opencv-python依赖（**必须安装4.5.4.60版本**，否则IDE下无自动补全）

```
pip install opencv-python==4.5.4.60
```

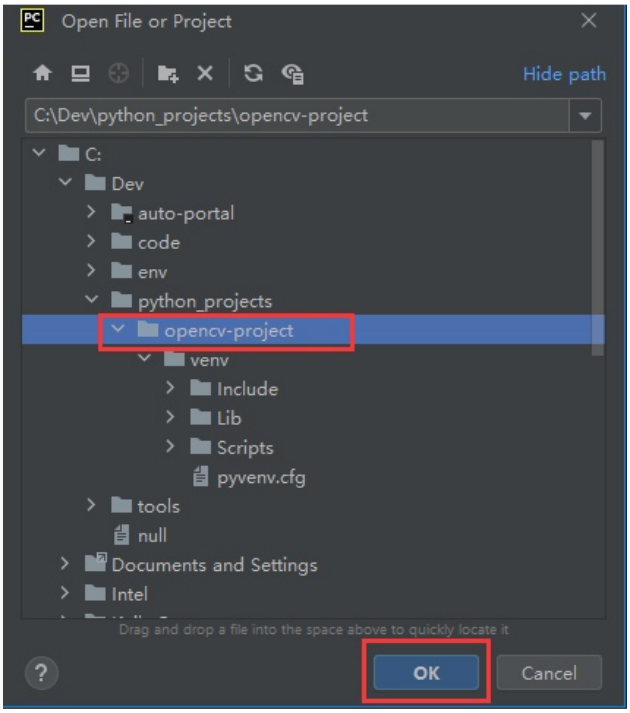


PyCharm打开工程

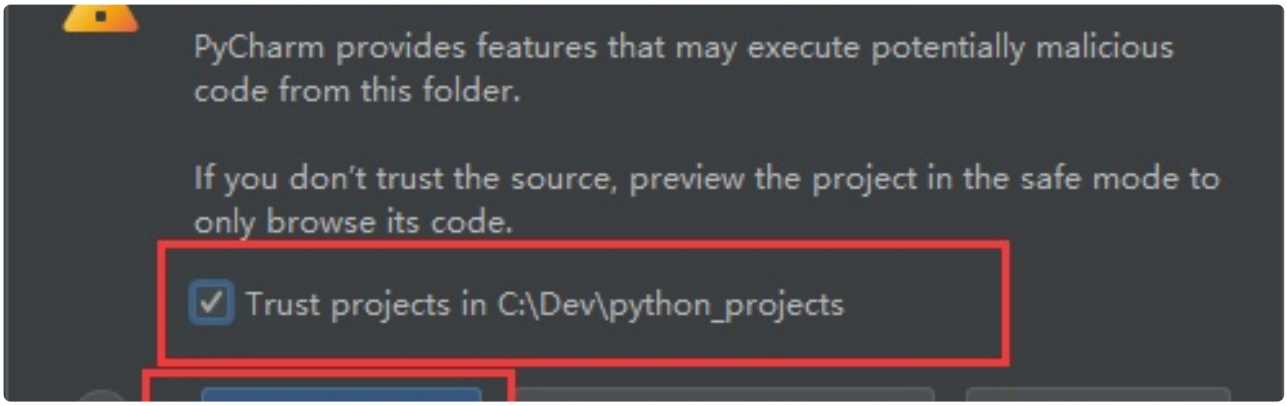
打开PyCharm，点击**Open**



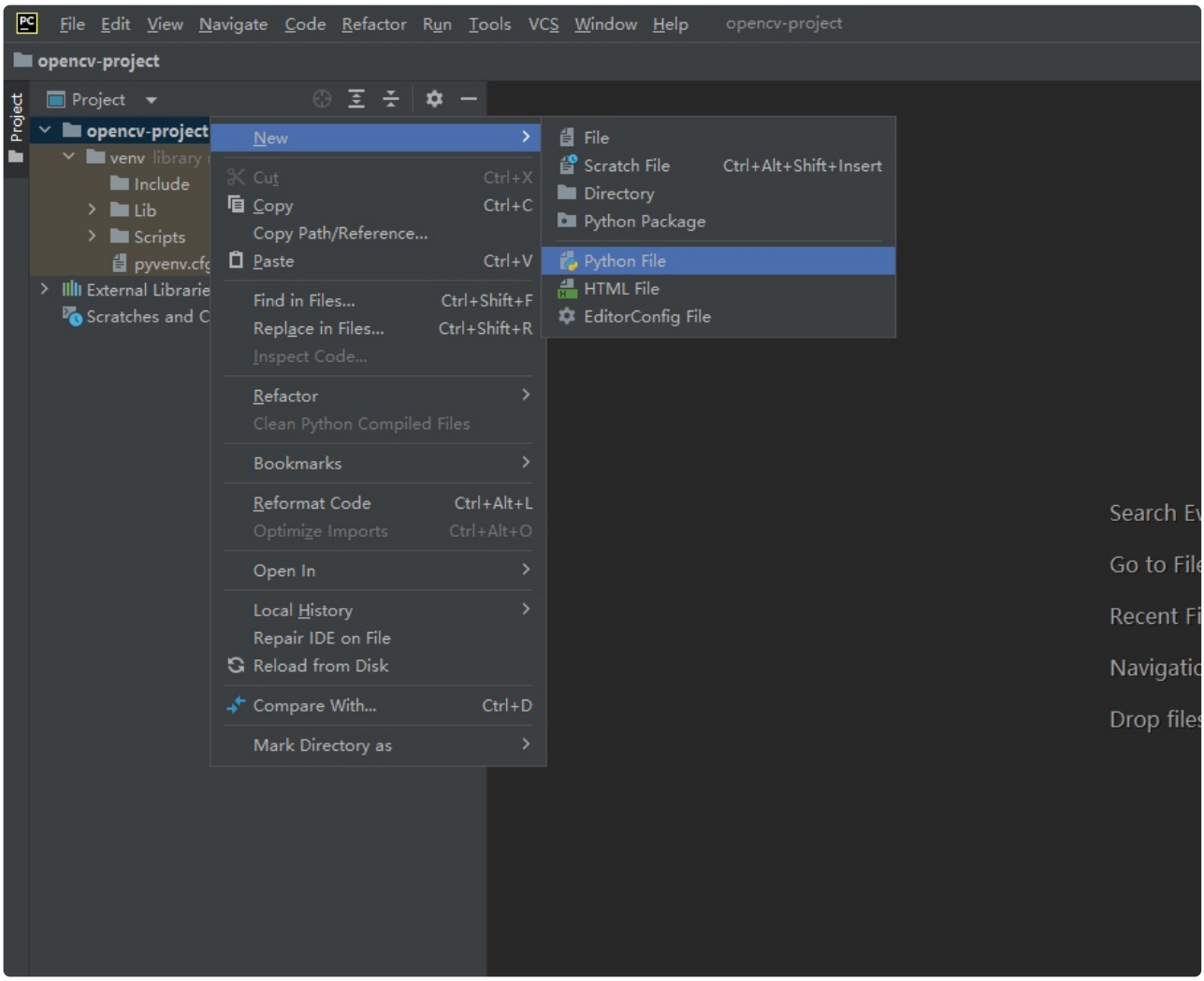
选中刚才创建的工程目录，点击 **OK**

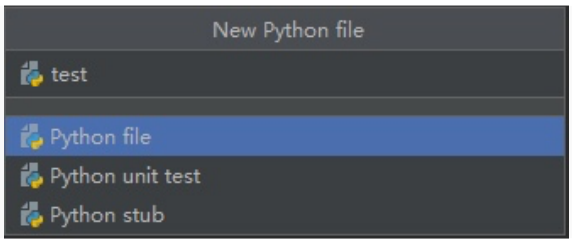


如果弹出下图提示框，参考下图操作



创建 OpenCV 验证程序

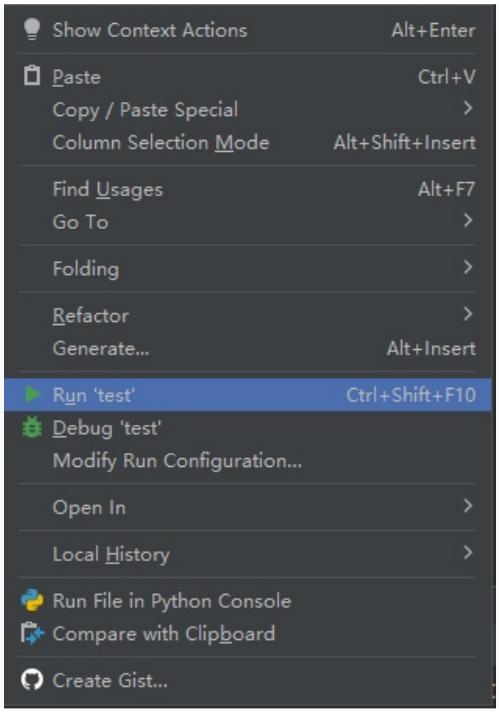




输入以下代码（路径替换为自己工程目录，1.png 可以为任意图片,在当前路径下）

```python
import cv2
img = cv2.imread(r"C:\Dev\python_projects\opencv-project\1.png", cv2.IMREAD_COLOR)
cv2.imshow('image', img)
cv2.waitKey(0)
cv2.destroyAllWindows()
```

右键执行 `Run 'test'`



弹出 `1.png` 图片即表示 OpenCV 环境搭建成功