Python Installation Instructions

IEEE UNT Robotics and Automation Society

Contents

1 Introduction

This document is designed to teach you how to install Python and IDEs in order to write and execute scripts in Python. This tutorial will cover Linux, Windows, and Mac. If you need additional help or want more information, please contact the IEEE UNT RAS officers or send a message in the Discord. This document is written in preparation for the Python for Engineers event being held on Wednesday, September 30th at 5:30pm and hosted by the IEEE UNT Robotics and Automation Society. We will be focusing on syntax and commands for Python 3.8 (the latest stable release). The workshop will be done using a terminal and text editor (Sublime), but we will also be able to help with issues with the IDEs described in this document.

Before installing an IDE, you must first install Python. For Mac and Windows, navigate to https://www.python.org/downloads/release/python-385/ for the version 3.8.5 download. At the bottom of the page, select the appropriate installer file for your operating system and architecture.

2 PyCharm

2.1 Download & Install

1. Navigate to https://www.jetbrains.com/pycharm/download/.
2. Select the tab for your operating system (Windows, Mac, or Linux).
3. Under the *Community* header, press the **Download** button. The Professional version has some extra support, but requires a paid license. The download should automatically start.
4. If you are on Windows, run the executable and press **Next** until you reach the **Install** button. On the second to last page, you can select some options (e.g., create file associations with Python scripts ending in the `.py` file extension), but none of these are required. Finally, follow the prompts (optionally select theme and featured packages) to finish the installation.
5. If you are on Linux, extract the `.tar.gz` directory and follow the instructions in the `Install-Linux-tar.txt` file:
   (a) Navigate to the `bin/` directory.
   (b) Run the PyCharm bash script with the command `./pycharm.sh`.
   (c) Follow the prompts to finish the installation. None of them are required and you can instead click the skip button in the bottom left to complete.
   (d) If you chose to create a global command, you can use the command `charm` to run PyCharm. Though, a welcome window should open up after the installation completes.

(e) If you did not choose to create a global command, you can instead run the command `./pycharm.sh` from the download directory again and this will run PyCharm as it detects it is already installed.

6. If your installation was successful and you chose to open PyCharm, you should now have a window as shown in Figure 1.

Figure 1: PyCharm welcome screen after installing.

2.2 Create a New Project

1. When first running PyCharm, you should see an window as shown in Figure 1. To create a new project, press the **New Project** button. If you have already created a new project, select the menu option `File > New Project`. Following either method, a window as shown in Figure 2 will open. The location values will be different based on your operating system (these screenshots are for Linux).

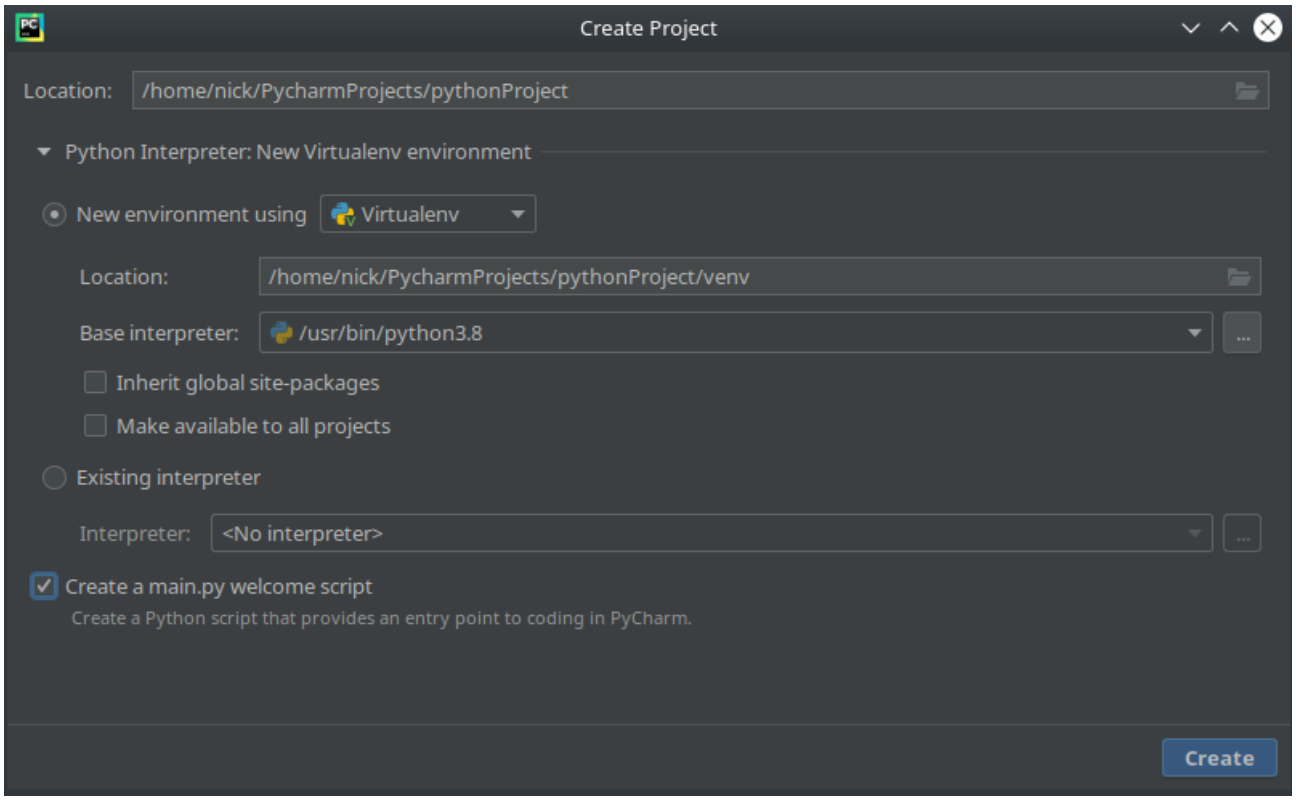

Figure 2: PyCharm create project window.

2. Change the directory as desired in the `Location:` field. Since we are using Python 3.8, we can leave everything else default. If you wish to initialize a `main.py` script file, leave the last check box selected. If you wish to create your own, uncheck this box. When you are done, click the **Create** button.

3. PyCharm should now open with a view as shown in Figure 3.

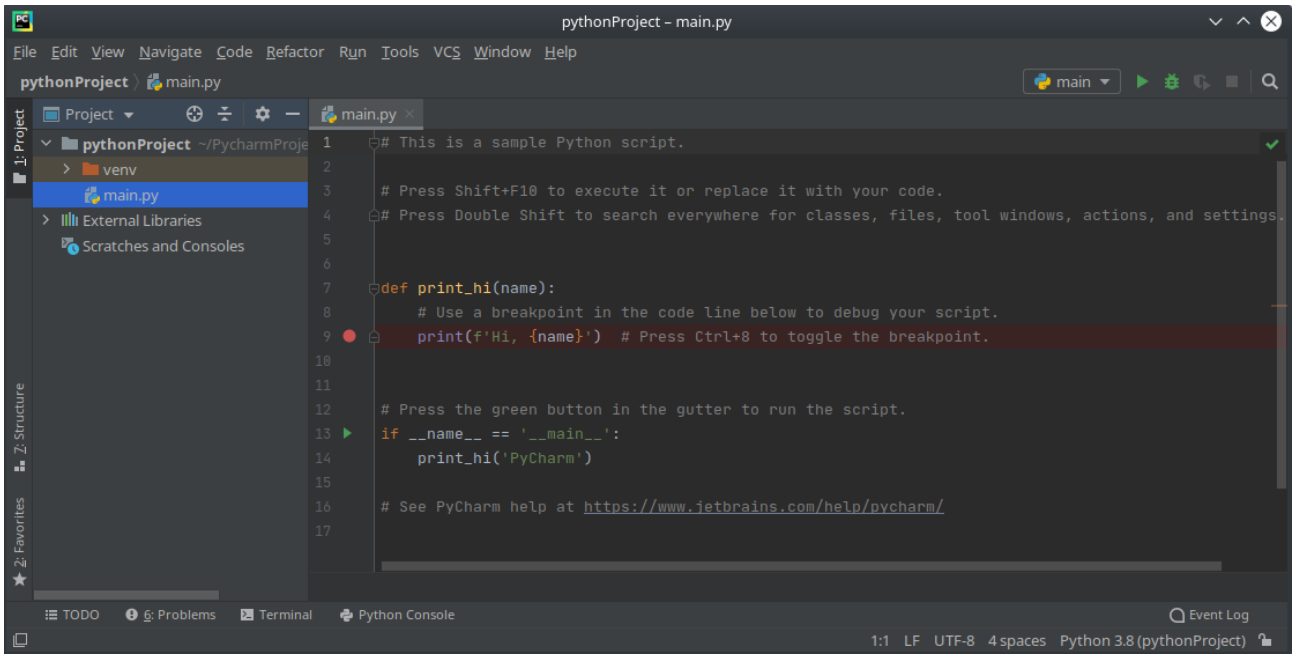

Figure 3: PyCharm development view.

4. The project view is in the left pane. This will show your current project and its source files. The main window is your editor. If you kept the create a `main.py` welcome script option checked, your project will contain this script and the editor will show its contents. This simple script calls the `print_hi()` function and prints the text `Hi, PyCharm` to the output.

5. To run the script, click on the green right-facing triangle in the upper left corner or press `Shift+F10`. A new view will show up on the bottom of the window with the output of the program. This view can be opened and closed by pressing `Alt+4` or through the menu option `View > Tool Windows > Run`. The output of running this script is shown in Figure 4.

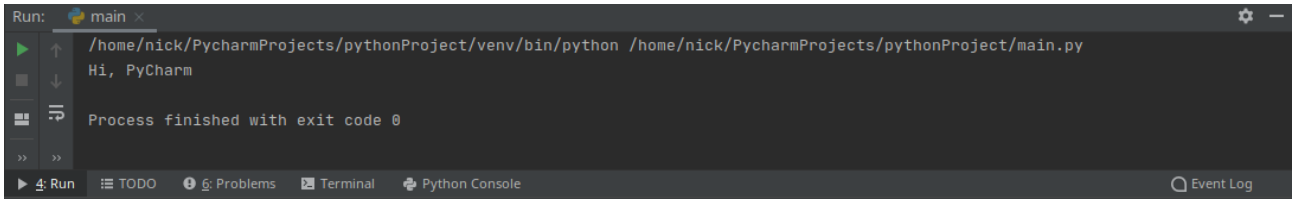

Figure 4: Output from PyCharm's `main.py` welcome script.

6. If your script successfully completes, the output will end with exit code 0. If unsuccessful, PyCharm will display an error message in the output along with the line it occurred on and the process will exit with code 1.

7. To create new projects, go through the menu option `File > New Project` and follow the above steps. To add more scripts to your project, right-click on the project folder in the project view and select `New > File`.

2.3 Install Packages

1. To install packages for your project, navigate to the settings page in `File > Settings` or use the shortcut `Ctrl+Alt+S`.

2. Navigate to `Project:$(your_project) > Python Interpreter`.

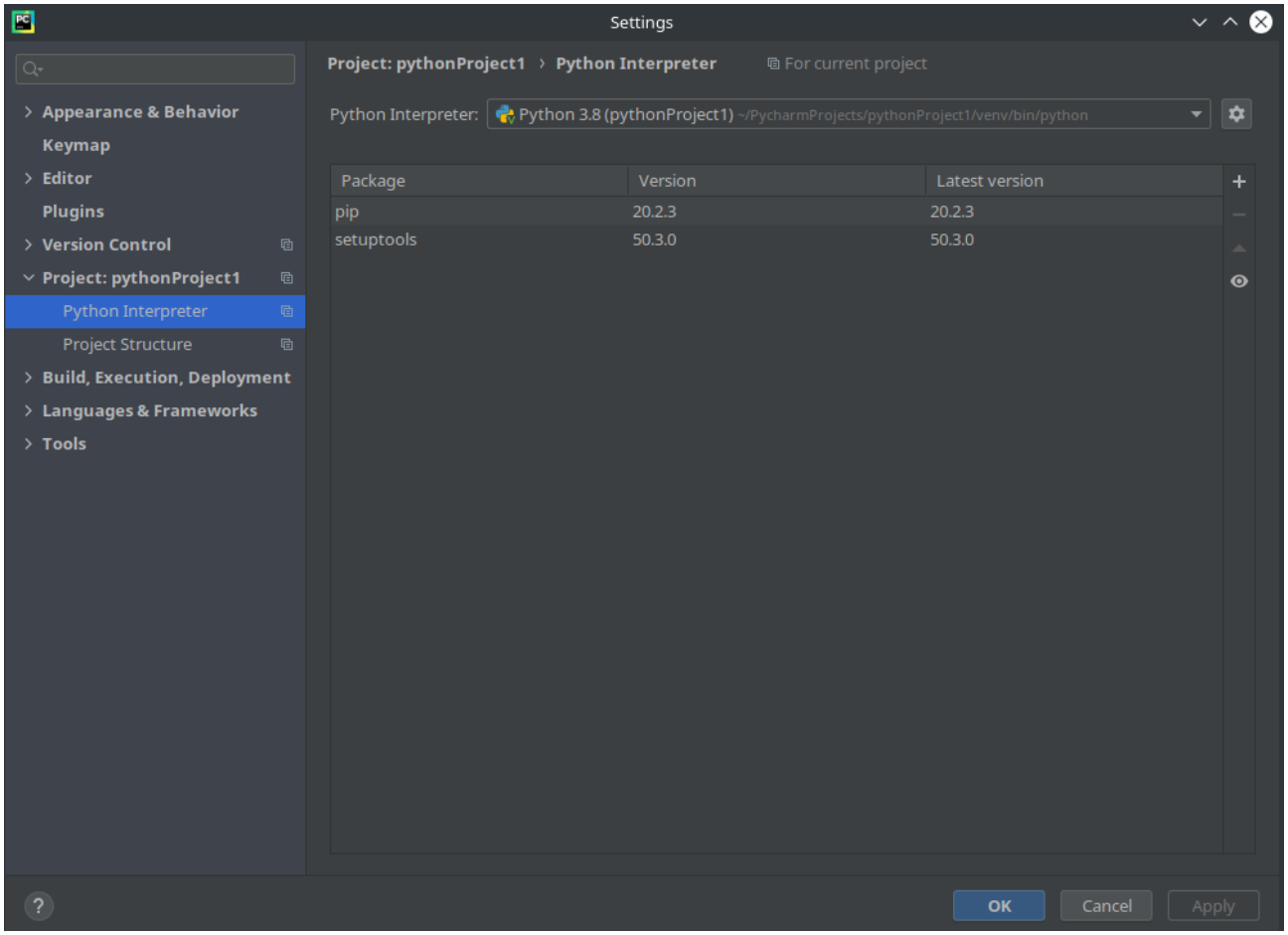

Figure 5: Package list view for the current virtual environment.

3. Click the + button in the upper right to open the available packages dialog.

4. In the available packages dialog, the list of all available packages is shown. Type the name of the package you want to install into the search field. The list will now show matching packages only. The search results for the `numpy` package are shown in Figure 6.

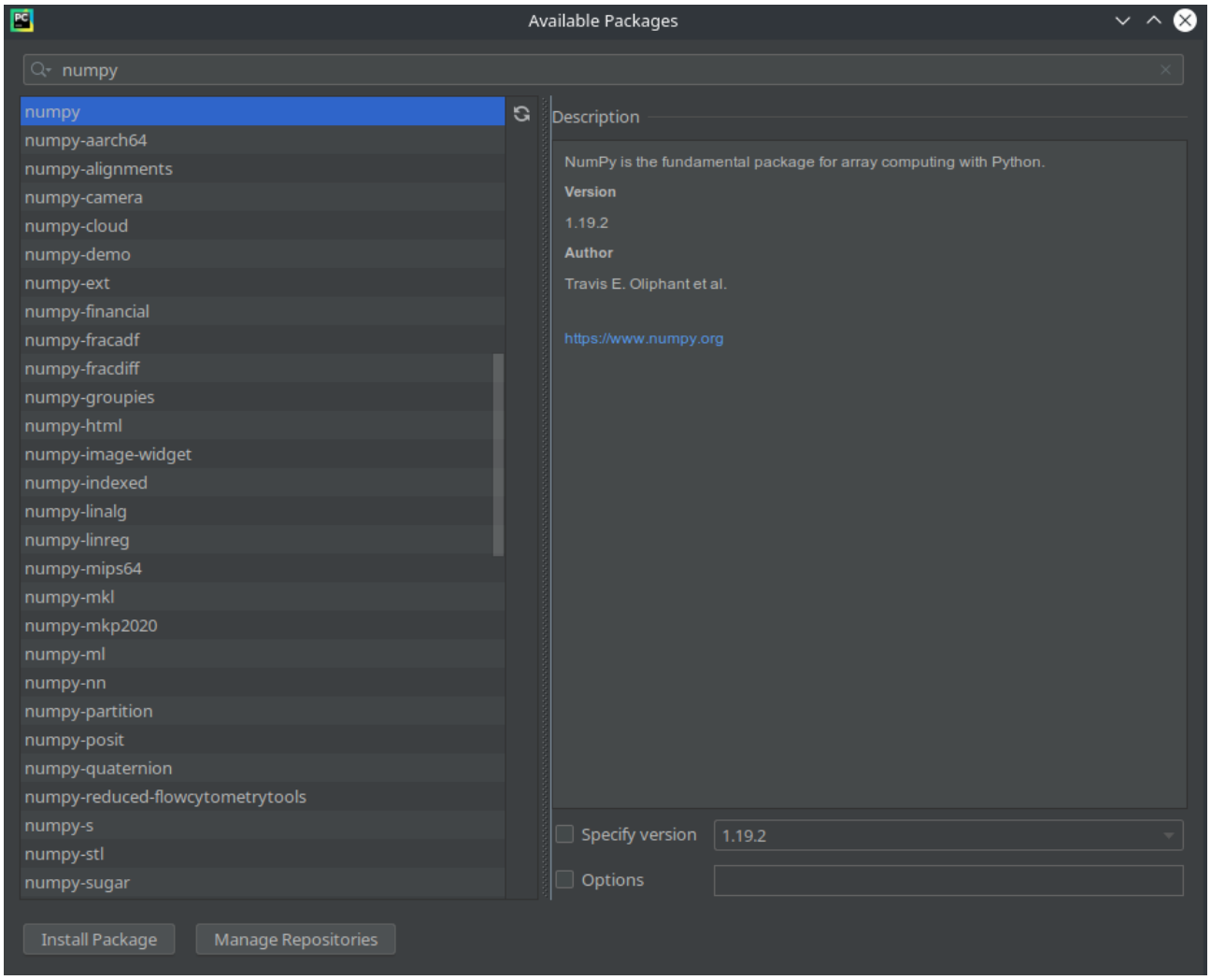

Figure 6: Search results for the `numpy` package.

5. To install the selected package, click the **Install Package** button.

6. Once the success message appears, you can close the available packages view and close the settings window.

7. To install packages more quickly, first type the import statement in your script. If the package is not already installed, the package name will be underlined with a red squiggly line.

8. Hovering over the underlined package for a short duration will display a popup box. Move your mouse directly onto the box and click the **Install Package $(package_name)** button. Alternatively, press `Alt+Shift+Enter` when the popup box displays to install the package.

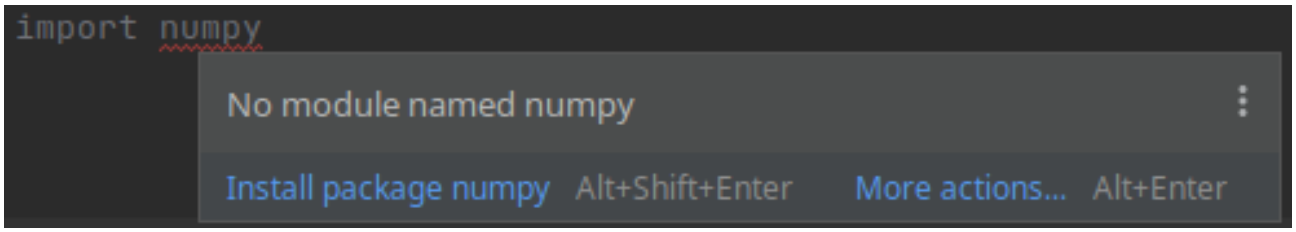

Figure 7: Search results for the `numpy` package.

9. For more help with PyCharm, navigate to PyCharm's learning center here: https://www.jetbrains.com/pycharm/learning-center/.