Sphero Research Project

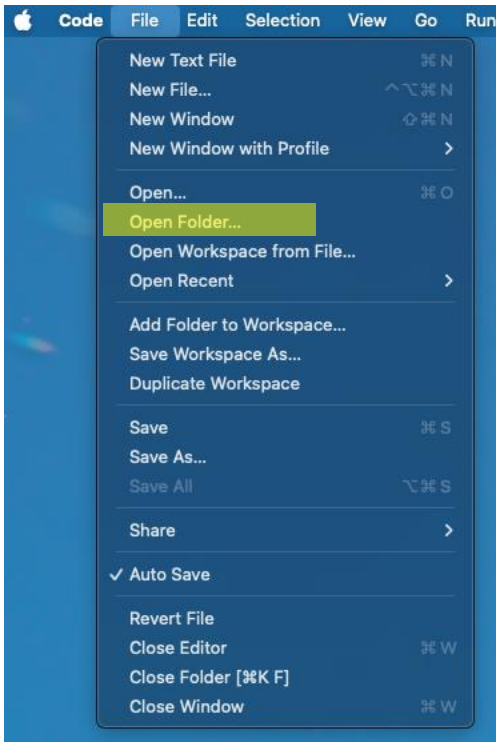
Setting Up Visual Studio Code & Sphero Code

FIRST TIME SETUP:

1. **Download and Install** Microsoft Visual Studio Code (VS Code):

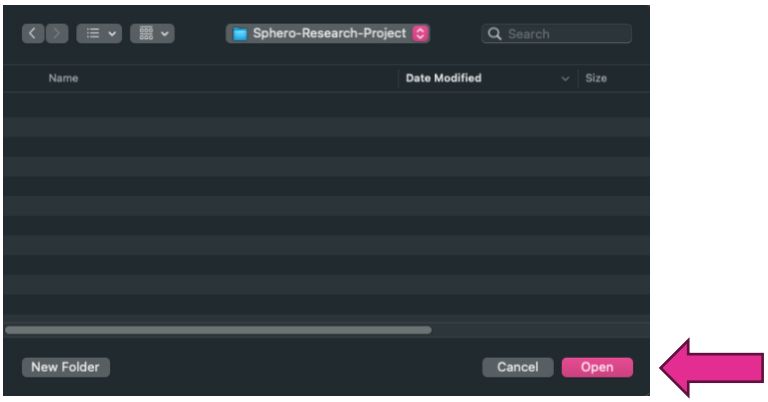
   (Mac/Windows): https://code.visualstudio.com/download

2. **Open VS Code → File →Open Folder**

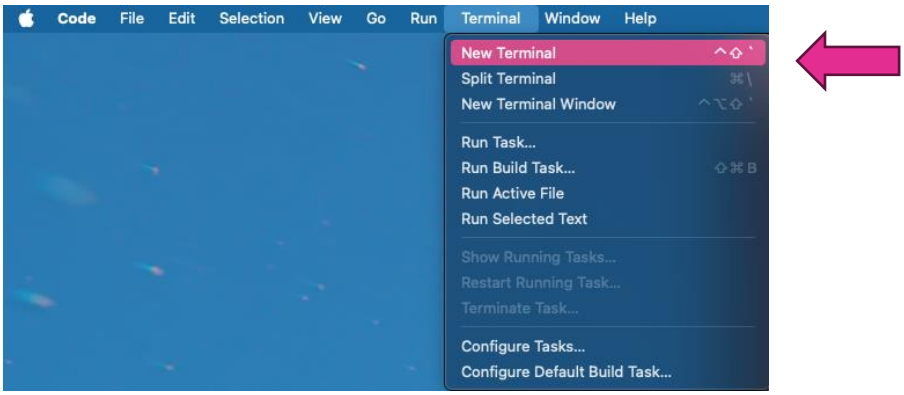


3. **<u>Create a New Folder:</u>**
    - Make a new folder called “Sphero-Research-Project” wherever you would like to save the project files.

4. **Click <u>Open:</u>** to use this empty folder as your project directory.

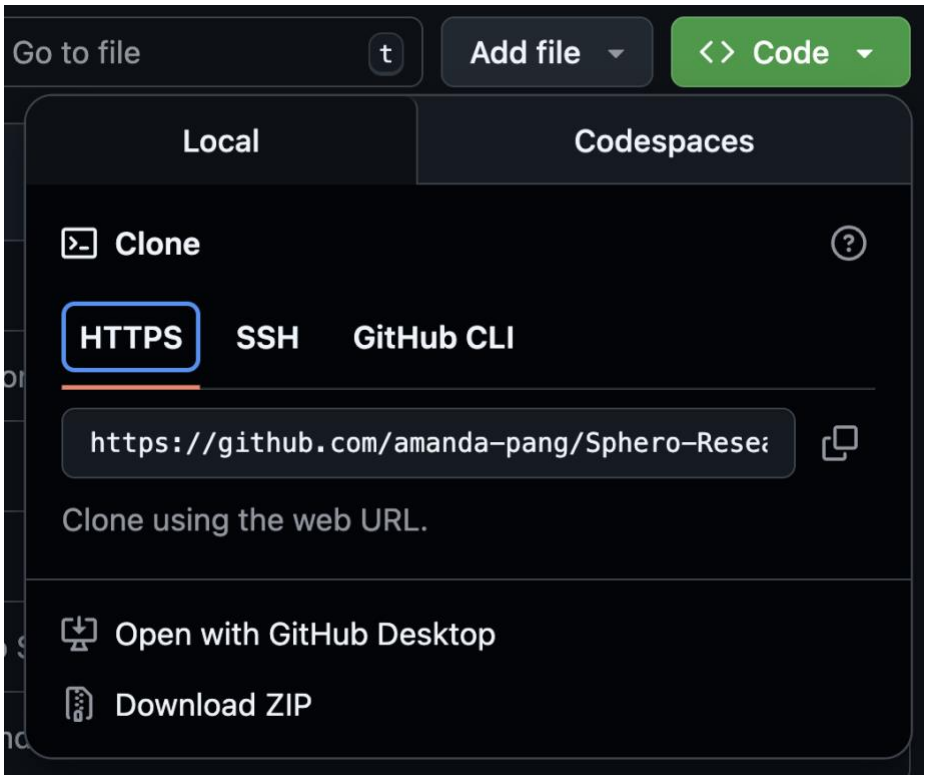


5. **Click <u>Terminal</u> → New Terminal**



6. **<u>Clone the Git Repository:</u>** get a local copy of all necessary files at this link: https://github.com/amanda-pang/Sphero-Research-Participants

- **METHOD 1:**
    - Clone the git repo by clicking on the “code” button and copying the link shown in the screenshot below

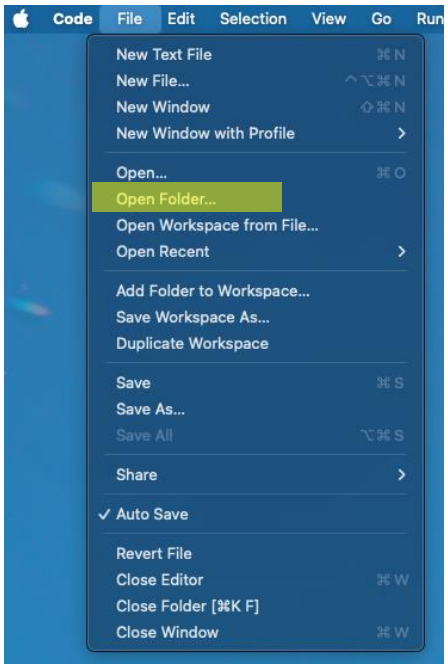


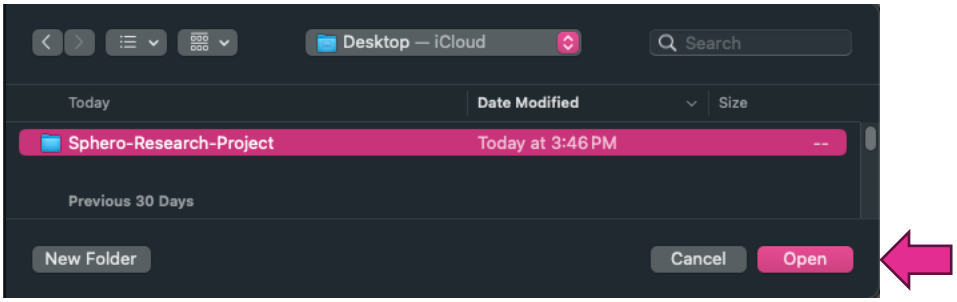
    - Copy and paste this into your new terminal:
        - **git clone [THE LINK YOU COPIED]**
        - **git clone** https://github.com/amanda-pang/Sphero-Research-Participants.git

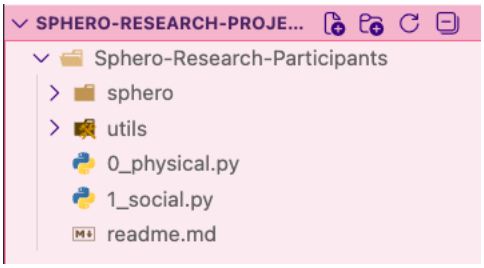
- **METHOD 2:**
    - Download github desktop
    - Select “Open with GitHub Desktop” after clicking on Code

Running your Sphero

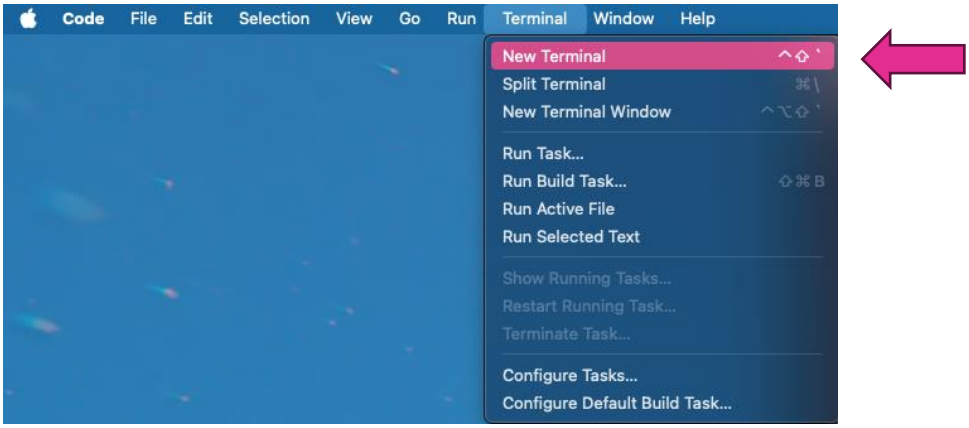
1. **Open VS Code → File → Open Folder → Sphero-Research-Project**
    - Open the folder where you've saved all the project files







2. **Click Terminal → New Terminal**



3. **Install your virtual environment:** Move into the Sphero-Research-Participants directory and execute the following commands one by one in your terminal:
    - cd Sphero-Research-Participants (if you are not already in the Sphero-Research-Participants directory)
    - Python -m venv sphero
    - source sphero/bin/activate
    - pip install -r requirements.txt (or if this doesn't work, try pip3 install -r requirements.txt)

```
(base) amanda_mac@Amandas-MacBook-Pro Sphero-Research-Participants % source sphero/bin/activate
(sphero) (base) amanda_mac@Amandas-MacBook-Pro Sphero-Research-Participants %
```

4. **Make one change to the spherov2 library** following instructions in the screenshot below:

The spherov2 library on PyPI has a bug where collision events produce an error before the on_collision callback is reached.

You can make a manual change to the `sensor.py` file in the library to get collisions working locally. Assuming you have a virtual environment running and the library is already installed, open this file:

```
`\venv\lib\site-packages\spherov2\commands\sensor.py`
```

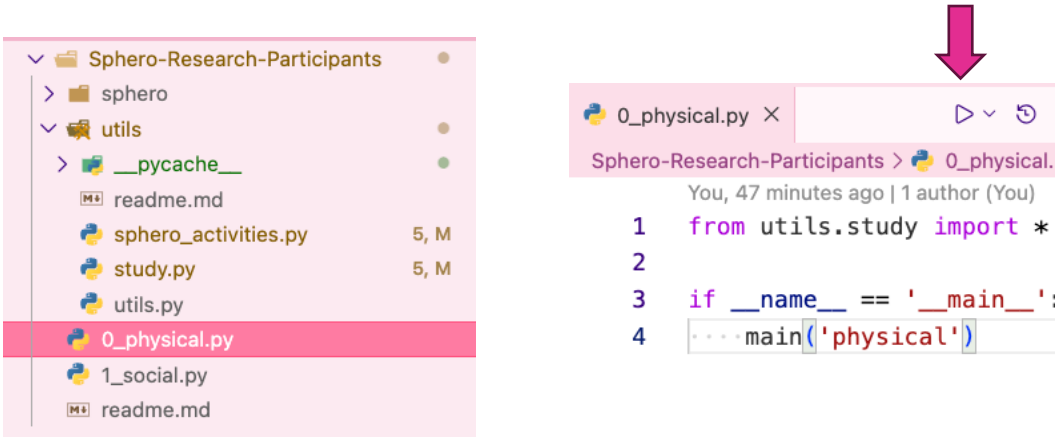
Go to line 159 and change he last letter in the string from L to h:

```
`unpacked = struct.unpack(">3hB3hBh", packet.data)`
```

5. **<u>Running Physical / Social:</u>** Sphero Research Conditions

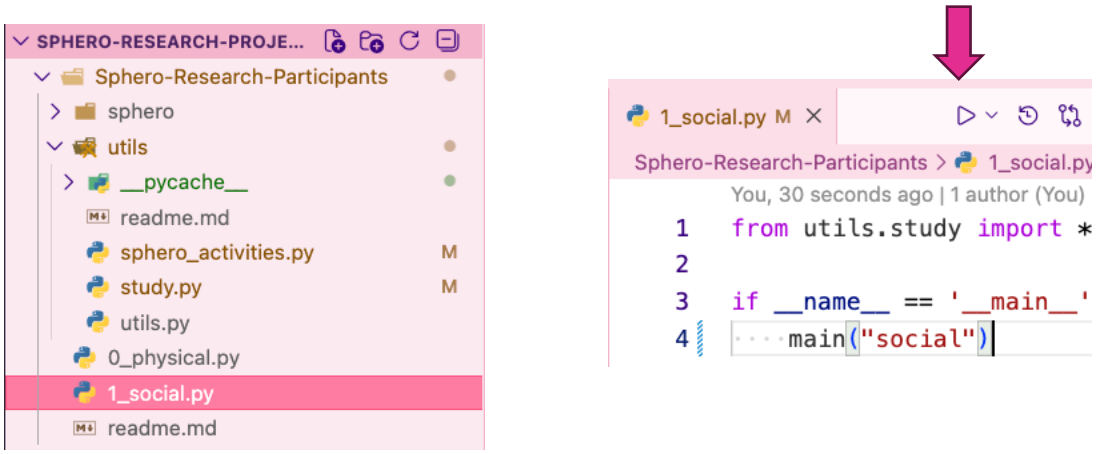
5a. If you are currently in the "<u>Physical</u>" arm, click the file "0_physical.py"

- Then click the "run" button on the top right.



5b. If you are currently in the "<u>Social</u>" arm, click the file "1_social.py"

- Then click the "run" button on the top right.



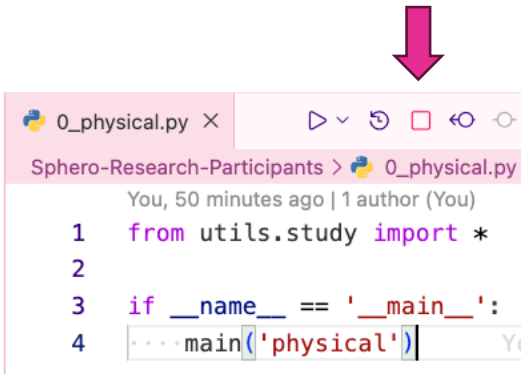
6. That's it! Just leave your Sphero buddy nearby while you work, and leave VS Code open and running in the background.
    - Use our website to track the start and end of your study session, and log when you complete a stretch.

7. **Everyday when you try to rerun the code, you'll need to activate your virtual environment first then execute the file**.
    a. Paste this command into your terminal to activate virtual environment:
        - source sphero/bin/activate

More instructions on the next page →

Disconnect & End

1. When you are done with your studying/working session:
   - Disconnect your Sphero and quit the program by clicking the “Stop” button in VS Code.



2. Navigate to our website, and click “End Study Session”.
   - If you forget to log any events (start/end time, or a stretch break), you may manually enter this information on the “Manual Entry” tab.

Thank you for participating in our study!!