How to setup Python for the Unity project - Windows manual

1. MAKE A CONDA ENVIRONMENT

The first step of getting the Unity project to work on your Windows computer is to ensure that there is a Python environment with all the resources for the image processing algorithms.

1. Install Anaconda from https://www.anaconda.com/download. When installing, select the option “add to path variable” (or something similar)
2. When Anaconda is installed: open Anaconda Navigator and then open shell.exe from within the navigator.
3. Make a new Conda environment named *JIP_env* (or another fun name) with
   - `conda create –name JIP_env python=3.9.18`
4. Activate the Conda environment with:
   - `conda activate JIP_env`
5. Add all relevant Python packages that you need for your algorithms to the environment. For the version of https://github.com/neuralcodinglab/dynaphos during October 2024, it was sufficient to add `numpy`, `scipy` `matplotlib`, `opencv` and `pytorch`. The first packages could be installed with:
   - `conda install numpy scipy matplotlib opencv`

   For `pytorch`, there are two different options. If your computer has a GPU, use the the following command to make use of this:
   - `conda install pytorch torchvision torchaudio pytorch-cuda=11.8 -c pytorch -c nvidia`

   Otherwise, if your computer does not have a GPU, use
   - `conda install pytorch torchvision torchaudio cpuonly -c pytorch`

2. SETUP CONDA FOR TERMINAL / SET THE PATH VARIABLE

Next, we need to ensure that we can activate the conda environment that we have just created from the command line. If you selected the “add to path variable” option, this might already work. Check this in the following way:

1. open the application cmd.exe
2. Run the following command to activate *JIP_env* (or another environment name that you chose during step 1.3)
   - `conda activate JIP_env`
3. If this runs without errors, then please proceed to 3 (so skip steps 2.4 - 2.6). Otherwise, we have to add conda to the path variable manually.
4. Find the conda path:Open Anaconda Navigator and then open shell.exe. Run the following command
   - `echo %CONDA_PREFIX%`
     (an example output would be `C:\Users\<username>\Anaconda3`, but this could be a bit different depending on your computer)

   Copy the output.
5. Press the following keys: Windows + X. Then select: system → advanced system settings → environment variables → Path [you can find this somewhere in user or

system variables]. Ad the following three paths, where you replace "`C:\Users\<username>\Anaconda3`" by the path that you just copied

- `C:\Users\<username>\Anaconda3`
- `C:\Users\<username>\Anaconda3\Scripts`
- `C:\Users\<username>\Anaconda3\condabin`

6. Again, open cmd.exe and run the following command:
   - `conda init`

Now you can activate the conda environment from a cmd.exe terminal. Test this by following 2.1-2.3 from this manual.

3. UPDATING THE CONFIGURATION FILE

Lastly, we have to ensure that our Unity project can use our conda environment by telling the project the name and location of our environment.

1. Locate the file `config.json` in the `Assets/StreamingAssets` directory. Open this file. It should look something like this:

```
{
    "baseCondaPath": "/Users/username/anaconda3",
    "condaEnvPath": "/Users/username/anaconda3/envs/JIP_env",
    "pythonScript": "Image_Processing.py",
    "operatingSystem": "Windows"
}
```

Use the following table for setting all variables correctly:

	Windows	**MacOS** (not recommended)
`operatingSystem`	`"Windows"`	`"MacOS"`
`pythonScript`	`"Image_Processing.py"`	`"Image_Processing.py"`
`baseCondaPath`	`""` (can be left empty)	`"/Users/username/anaconda3"` (change to the path of your anaconda installation)
`condaEnvPath`	`"JIP_env"` (or the name of your environment that your created in 1.3)	`"/Users/username/anaconda3/envs/JIP_env"` (change to the path of your environment)