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WormPsyQi Installation Guide

- **Installation of software packages**
  - PsyQi program is currently built on Python>=3.9. We recommend using Python 3.10 version.
  - Install Python **(recommended: Python 3.10.8)**
    i. Go to the download page
       - https://www.python.org/downloads/
    ii. Choose a Python version greater than or equal to 3.9. Versions up to 3.10.8 are tested.
    iii. Download and run the installation file Python that is compatible with your OS.
       - While installing it, you must check 'Add Python to environment variables' in 'Advanced Options' step
       - If your system is Windows, you can determine whether your system is 32bit (x86) or 64bit (x86-64) by following instructions of this link below.
         a. https://www.tenforums.com/tutorials/4399-see-if-system-type-32-bit-x86-64-bit-x64-windows-10-a.html

b. Checklist after installation
   i. Run a new "Command Prompt" (Windows) or "Terminal" (OSX or Linux)
   ii. Type "python -V"
       - If it prints the same version with what you installed, you are good
       - If it prints python is not recognized as an internal or external command, try to type python3 -V
         a. If it also prints python is not recognized as an internal or external command, try to type "python3.10 -V" (or 3.9 depends on the version)
       - Whichever worked for you (python -V, python3 -V, or python3.10 -V) you will continue to use in future commands
   iii. For example, in Figure 1 below, only "python -V" worked. In this case, you need to keep using "python", not "python3" or "python3.10" for the rest of the instructions. (Highlighted commands to type)

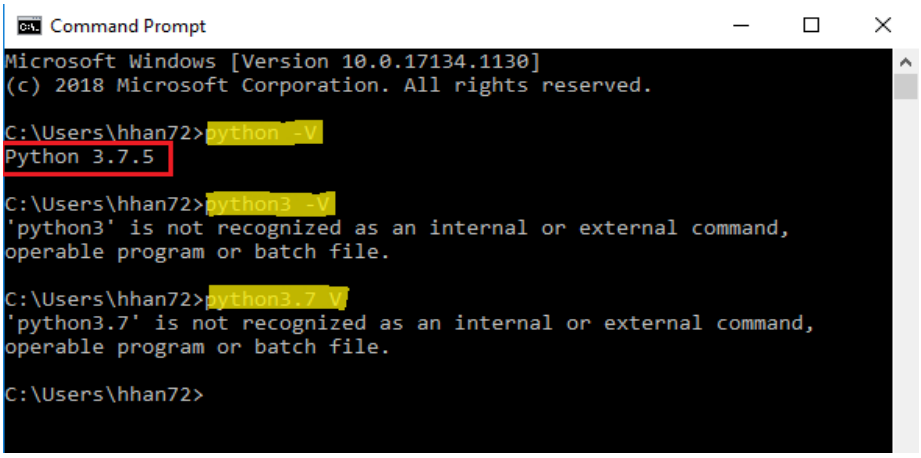

Figure 1: Captured screen of checking python version

2. Python modules
    a. Clone the WormPsyQi GitHub repository
        - Run the command below with replacing <folder_name> to a folder name you want.

```
git clone https://github.com/lu-lab/worm-psyqi.git <folder_name>
```

        - You will see the files as in the Figure 2

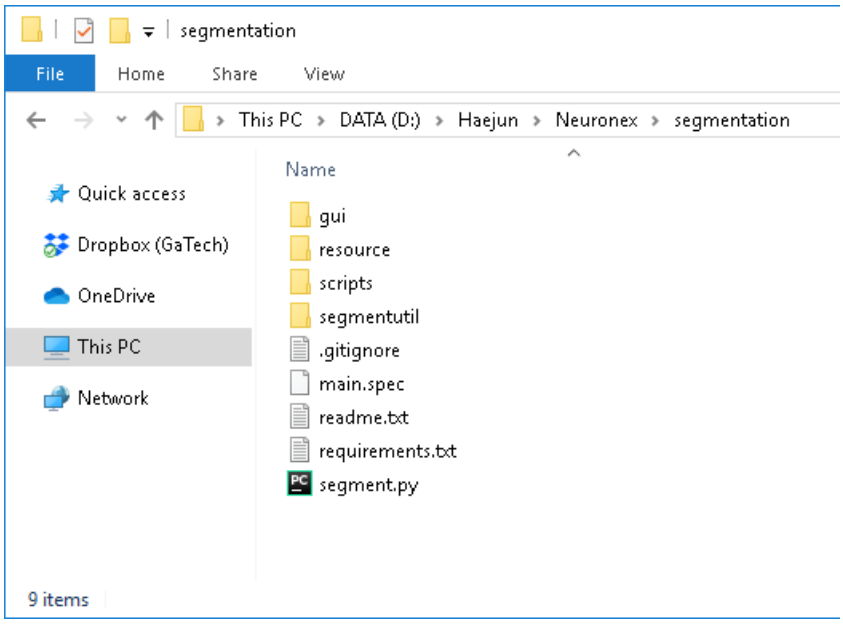

Figure 2: Captured screen of the codes downloaded

    b. Install modules
        i. Run a new “Command Prompt” window (or “Terminal” for OSX / Linux), and enter the new directory (the folder you created and unzipped the downloaded file into) using ‘cd’ command. (e.g. cd filename)
            - If you are not familiar with using “Command Prompt”, this tutorial might help
                a. https://www.digitalcitizen.life/command-prompt-how-use-basic-commands
        ii. Run the commands below sequentially (commands are in ***italic bold text***). Replace ‘python’ with the one which works (python or python3 or python3.10) when you follow the section 1. b.

0. Make sure the command prompt is in the new directory in which you placed the pipeline files. (see the section 2.b.i above)

1. Make a virtual environment

python -m venv venv

* If an error message appears, try python3 or python3.10 instead of python

2. Activate the virtual environment

Windows: ***.\venv\Scripts\activate***

Linux/OSX: ***source venv/bin/activate***

* "(venv)" should appear in front of the command line

3. Install setup tools

python -m pip install --upgrade pip setuptools wheel

* Text will appear with collecting pip… collecting setuptools… and collecting wheel… it should end with "successfully installed pip…"

4. Install other libraries

- For Python 3.10

pip install -r requirements_py310.txt

- For Python 3.9

pip install -r requirements_py39.txt

* It will collect and install a bunch of different libraries/modules (it will take a few minutes)
* Wait until you are back to the command entry line. E.g. (venv) D:\yourdirectory>_

6. Check if everything is set correctly

python -m gui.main

* The GUI window shown in Figure 3 (below) should show up

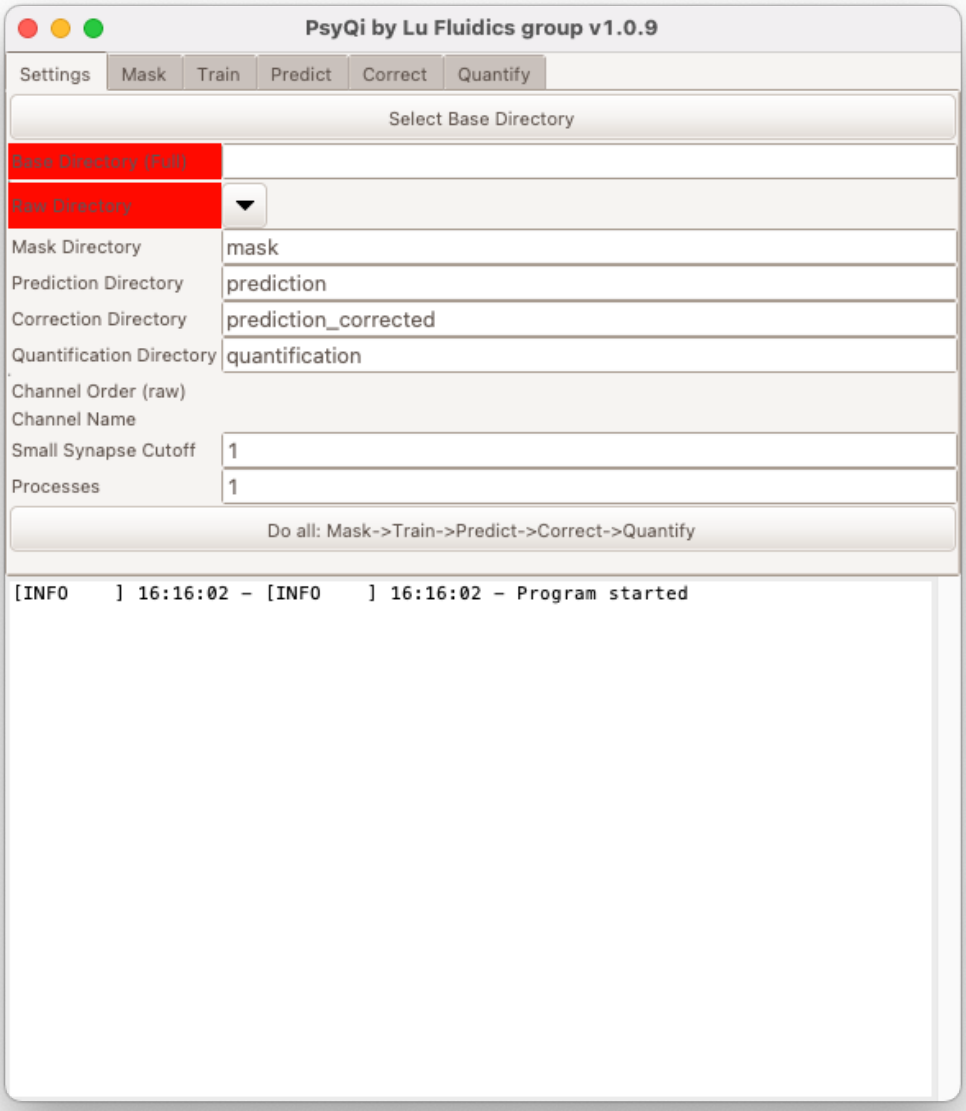

Figure 3: Captured screen of Synapse Segmentator GUI

iii. (Optional) Install CUDA-11.3 toolkit if you want to speed up the deep-learning based processes in the pipeline: https://developer.nvidia.com/cuda-11.3.0-download-archive

Now, you are ready to perform the segmentation.