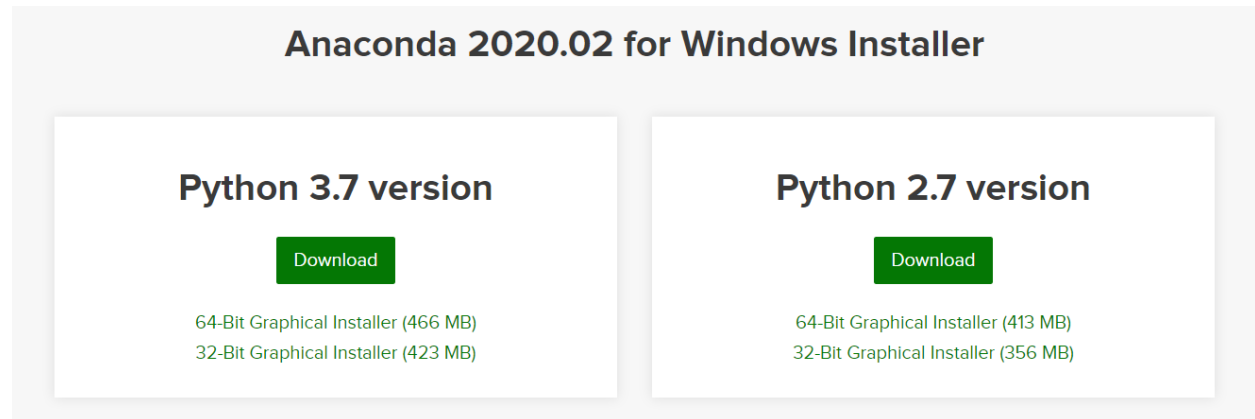


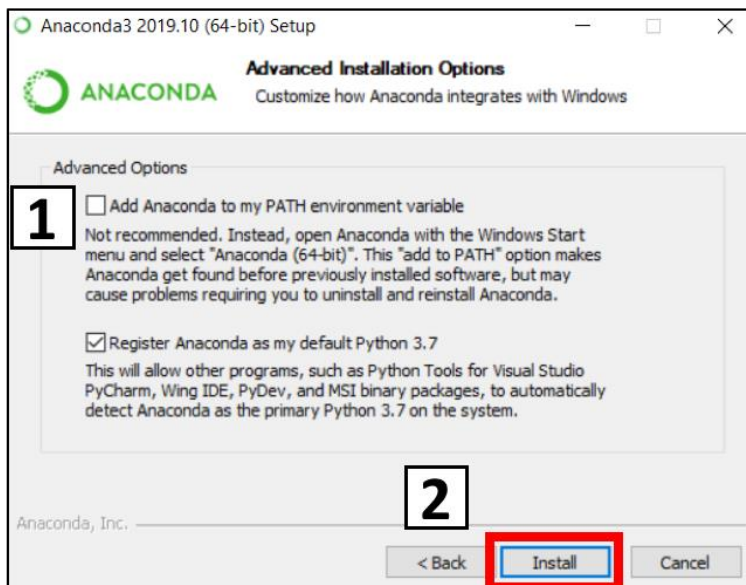
Plength Installation Guide

For any problems, please contact sai.chananchida@gmail.com

1. Install Python through [Anaconda](#)

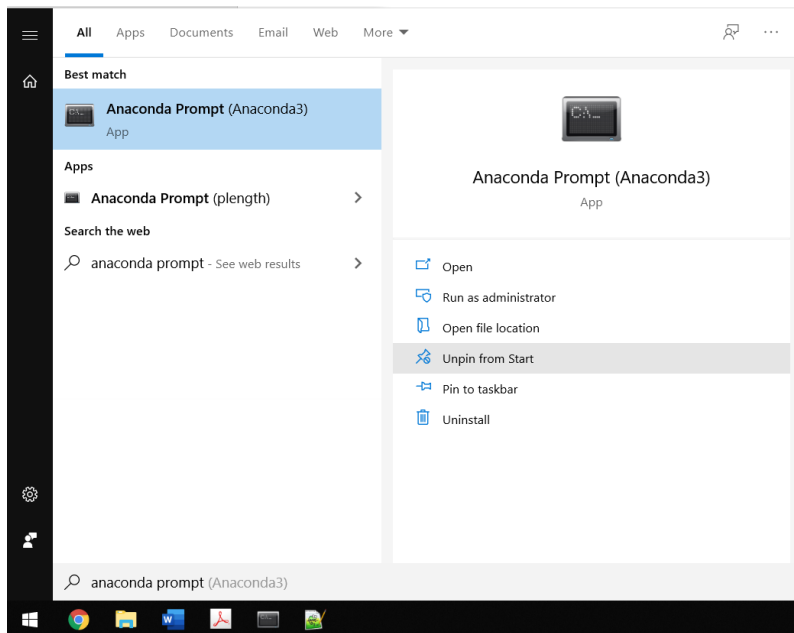


Download the Python 3.7 version. If you click the “Download” button it should automatically detect whether your computer is 32- or 64-Bit. It is recommended that you use Anaconda as your default Python and NOT add Anaconda to your PATH environment variable (see below).



2. Create a virtual environment

- Open “Anaconda prompt” (Using the “Command prompt” will not work!)



- Type the following command to create a virtual environment

`conda create -n plength anaconda python=3.5`

```
(base) C:\Users\Sai>conda create -n plength anaconda python=3.5
Collecting package metadata (current_repodata.json): done
Solving environment: failed with repodata from current_repodata.json, will retry with next repodata source.
Collecting package metadata (repodata.json): done
Solving environment: done

==> WARNING: A newer version of conda exists. <==
  current version: 4.8.2
  latest version: 4.8.3

Please update conda by running

  $ conda update -n base -c defaults conda

## Package Plan ##

  environment location: C:\Users\Sai\Anaconda3\envs\plength

  added / updated specs:
    - anaconda
    - python=3.5

The following NEW packages will be INSTALLED:

 alabaster           pkgs/main/win-64::alabaster-0.7.10-py35h3a808de_0
 anaconda            pkgs/main/win-64::anaconda-5.2.0-py35_3
 anaconda-client     pkgs/main/win-64::anaconda-client-1.6.14-py35_0
 anaconda-project    pkgs/main/win-64::anaconda-project-0.8.2-py35h06aeb26_0
 asn1crypto          pkgs/main/win-64::asn1crypto-0.24.0-py35_0
 astroid             pkgs/main/win-64::astroid-1.6.3-py35_0
 astropy             pkgs/main/win-64::astropy-3.0.2-py35h452e1ab_1
 attrrs              pkgs/main/win-64::attrrs-18.1.0-py35_0
 babel               pkgs/main/win-64::babel-2.5.3-py35_0
 backcall            pkgs/main/win-64::backcall-0.1.0-py35_0
 backports           pkgs/main/win-64::backports-1.0-py35he88aa47_1
```

You will be asked if you want to install the following packages. Type “y” and press enter.

```
vs2015_runtime      pkgs/main/win-64::vs2015_runtime-14.0.25123-3
wcwidth             pkgs/main/win-64::wcwidth-0.1.7-py35h6e80d8a_0
webencodings        pkgs/main/win-64::webencodings-0.5.1-py35h5d527fb_1
werkzeug            pkgs/main/win-64::werkzeug-0.14.1-py35_0
wheel               pkgs/main/win-64::wheel-0.31.1-py35_0
widgetsnbextension  pkgs/main/win-64::widgetsnbextension-3.2.1-py35_0
win_inet_pton       pkgs/main/win-64::win_inet_pton-1.0.1-py35hbef1270_1
win_unicode_conso~  pkgs/main/win-64::win_unicode_console-0.5-py35h56988b5_0
wincertstore        pkgs/main/win-64::wincertstore-0.2-py35hfebbdb8_0
winpty              pkgs/main/win-64::winpty-0.4.3-4
wrapit              pkgs/main/win-64::wrapit-1.10.11-py35h54666f7_0
xlrd                pkgs/main/win-64::xlrd-1.1.0-py35h22b952b_1
xlsxwriter          pkgs/main/win-64::xlsxwriter-1.0.4-py35_0
xlwings             pkgs/main/win-64::xlwings-0.11.8-py35_0
xlwt                pkgs/main/win-64::xlwt-1.3.0-py35hd04410a_0
yaml                pkgs/main/win-64::yaml-0.1.7-hc54c509_2
zeromq              pkgs/main/win-64::zeromq-4.2.5-hc6251cf_0
zict                pkgs/main/win-64::zict-0.1.3-py35hf5542e0_0
zlib                pkgs/main/win-64::zlib-1.2.11-h8395fce_2

Proceed ([y]/n)? y
Preparing transaction: done
Verifying transaction: /
```

This will take several minutes. Afterwards, your virtual environment will be created, which will allow you to use specific versions of the libraries that were used to write Plength.

3. Activate the virtual environment

- In the Anaconda prompt, type the following command:

```
conda activate plength
```

It is very important to do this every time before running the Plength script. You will be able to tell that you are in a virtual environment based on the start of the line, which changes from (base) to (plength)

```
(base) C:\Users\Sai>conda activate plength
(plength) C:\Users\Sai>
```

4. Install the required libraries

Download the requirements.txt file (and PLENGTH.py if you haven't already) from <https://github.com/csangara/plength>

Move the file(s) to your current directory and type the command:

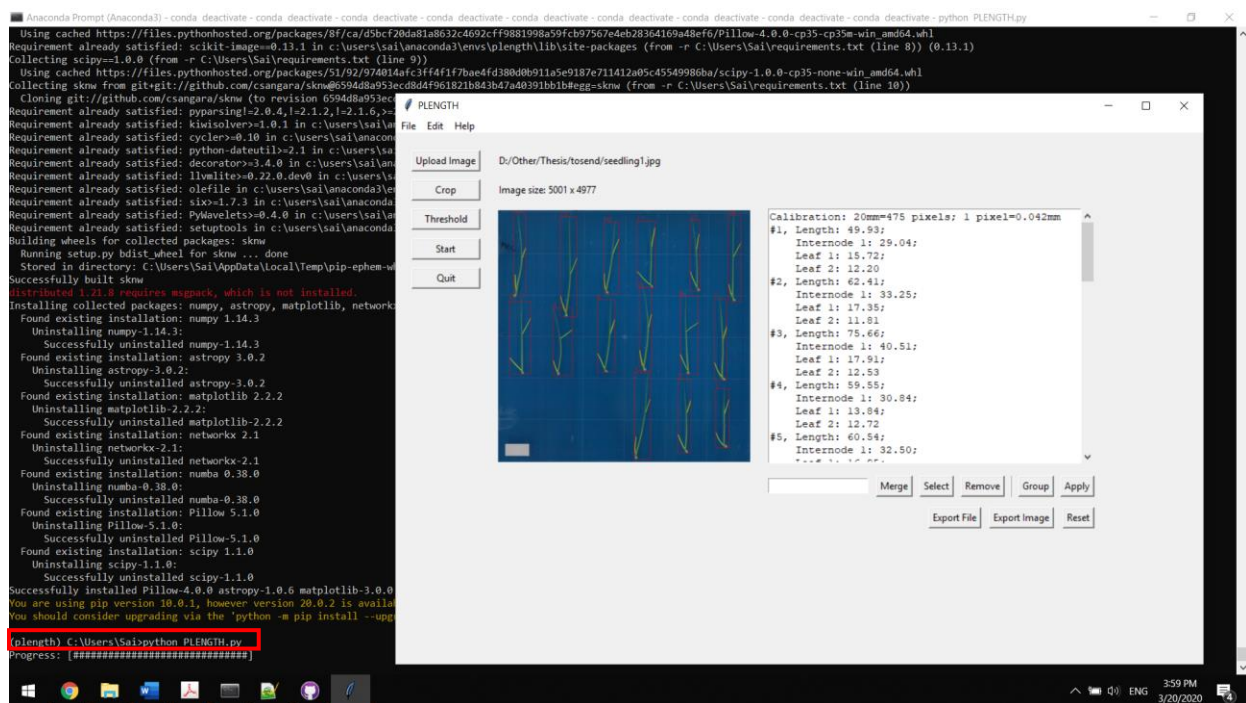
```
pip install -r requirements.txt
```

```
(plength) C:\Users\Sai>pip install -r C:\Users\Sai\requirements.txt
Collecting astropy==1.0.6 (from -r C:\Users\Sai\requirements.txt (line 1))
Collecting matplotlib==3.0.0 (from -r C:\Users\Sai\requirements.txt (line 2))
Using cached https://files.pythonhosted.org/packages/46/29/6dcd041e3bcff987c4fa6d8ed98e46435ba1bc1eb/astropy-1.0.6-cp35-cp36-macosx_10_7_x86_64.whl
Collecting networkx==1.11 (from -r C:\Users\Sai\requirements.txt (line 3))
Using cached https://files.pythonhosted.org/packages/d3/2c/e473e54afc9fae58dfa97066ef6709a7e35a1dd1d/networkx-1.11-py2.py3-none-any.whl
Collecting numba==0.37.0 (from -r C:\Users\Sai\requirements.txt (line 4))
Using cached https://files.pythonhosted.org/packages/03/b0/e0aaf4398f5dd6f2df7423cff76669545febb4133/numba-0.37.0-cp35-cp36-macosx_10_7_x86_64.whl
Collecting numpy==1.14.1 (from -r C:\Users\Sai\requirements.txt (line 5))
Using cached https://files.pythonhosted.org/packages/28/bd/f0ae2f29021976c94a56990264b9ce38c2a021da6/numpy-1.14.1-cp35-cp36-macosx_10_7_x86_64.whl
Collecting opencv-python==3.4.2.16 (from -r C:\Users\Sai\requirements.txt (line 6))
Using cached https://files.pythonhosted.org/packages/d9/f5/2a4374643c73e2f9fc459a2fc95cbadb6243c5be/opencv-python-3.4.2.16-cp35-cp36-macosx_10_7_x86_64.whl
Collecting Pillow==4.0.0 (from -r C:\Users\Sai\requirements.txt (line 7))
Using cached https://files.pythonhosted.org/packages/8f/ca/d5bcf20da81a8632c4692cff9881998a59fcb9756/pillow-4.0.0-cp35-cp36-macosx_10_7_x86_64.whl
Requirement already satisfied: scikit-image==0.13.1 in c:\users\sai\anaconda3\envs\plength\lib\site-packages (from -r C:\Users\Sai\requirements.txt (line 9))
Collecting scipy==1.0.0 (from -r C:\Users\Sai\requirements.txt (line 10))
Using cached https://files.pythonhosted.org/packages/51/92/974014afc3ff4f1f7bae4fd380d0b911a5e9187e7/scipy-1.0.0-cp35-cp36-macosx_10_7_x86_64.whl
Collecting sknw from git+git://github.com/csangara/sknw@6594d8a953ecd8d4f961821b843b47a40391bb1b#egg=sknw
Cloning git://github.com/csangara/sknw (to revision 6594d8a953ecd8d4f961821b843b47a40391bb1b) to c:\users\sai\anaconda3\envs\plength\lib\site-packages\sknw
Requirement already satisfied: gitpython in c:\users\sai\anaconda3\envs\plength\lib\site-packages (from sknw)
Requirement already satisfied: gitdb in c:\users\sai\anaconda3\envs\plength\lib\site-packages (from gitpython->sknw)
Requirement already satisfied: smmap in c:\users\sai\anaconda3\envs\plength\lib\site-packages (from gitdb->gitpython->sknw)
Requirement already satisfied: six in c:\users\sai\anaconda3\envs\plength\lib\site-packages (from gitpython->sknw)
Requirement already satisfied: decorator in c:\users\sai\anaconda3\envs\plength\lib\site-packages (from gitpython->sknw)
Requirement already satisfied: python-dateutil in c:\users\sai\anaconda3\envs\plength\lib\site-packages (from gitpython->sknw)
Requirement already satisfied: kiwisolver in c:\users\sai\anaconda3\envs\plength\lib\site-packages (from matplotlib->sknw)
Requirement already satisfied: cycler in c:\users\sai\anaconda3\envs\plength\lib\site-packages (from matplotlib->sknw)
Requirement already satisfied: six in c:\users\sai\anaconda3\envs\plength\lib\site-packages (from matplotlib->sknw)
Requirement already satisfied: PyWavelets in c:\users\sai\anaconda3\envs\plength\lib\site-packages (from scikit-image->sknw)
Requirement already satisfied: setuptools in c:\users\sai\anaconda3\envs\plength\lib\site-packages (from scikit-image->sknw)
Building wheels for collected packages: sknw
Running setup.py bdist_wheel for sknw ... done
Stored in directory: C:\Users\Sai\AppData\Local\Temp\pip-ephem-wheels
Successfully built sknw
Distributed 1.21.8 requires msgpack, which is not installed.
Installing collected packages: numpy, astropy, matplotlib, networkx, numba, opencv-python, Pillow, scipy, sknw
Found existing installation: numpy 1.14.3
Uninstalling numpy-1.14.3:
Successfully uninstalled numpy-1.14.3
Found existing installation: astropy 3.0.2
Uninstalling astropy-3.0.2:
Successfully uninstalled astropy-3.0.2
Found existing installation: matplotlib 2.2.2
Uninstalling matplotlib-2.2.2:
Successfully uninstalled matplotlib-2.2.2
Found existing installation: networkx 2.1
Uninstalling networkx-2.1:
Successfully uninstalled networkx-2.1
Found existing installation: numba 0.38.0
Uninstalling numba-0.38.0:
Successfully uninstalled numba-0.38.0
Found existing installation: Pillow 5.1.0
Uninstalling Pillow-5.1.0:
Successfully uninstalled Pillow-5.1.0
Found existing installation: scipy 1.1.0
Uninstalling scipy-1.1.0:
Successfully uninstalled scipy-1.1.0
Successfully installed Pillow-4.0.0 astropy-1.0.6 matplotlib-3.0.0
You are using pip version 10.0.1, however version 20.0.2 is available.
You should consider upgrading via the 'python -m pip install --upgrade pip' command.

(plength) C:\Users\Sai>python PLENGTH.py
Progress: [#####]
```

After all packages have been installed you should be able to run Plength with the command

```
python PLENGTH.py
```



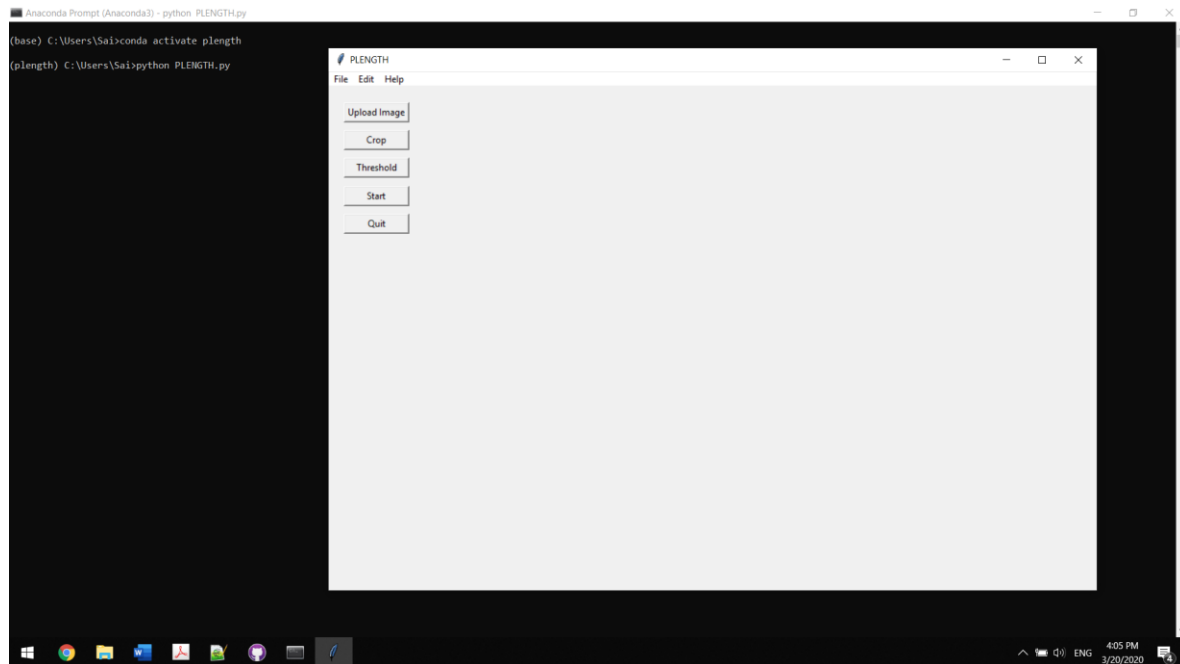
Note: In case the file requirements.txt is somehow unavailable, you can create the file yourself with the following content:

```
matplotlib==3.0.0
networkx==1.11
numba==0.37.0
numpy==1.14.1
opencv-python==3.4.2.16
Pillow==4.0.0
scikit-image==0.13.1
scipy==1.0.0
git+git://github.com/csangara/sknw@6594d8a953ecd8d4f961821b843b47a40391bb1b#egg=sknw
```

5. Using Plength afterwards

From now on, every time you would like to use Plength, you must

- Open “Anaconda Prompt”
- Type `conda activate plength`
- Type `python PLENGTH.py`



Happy measuring!