

# Assignment 3 Setup

Assignment 3 involves using one software package called [celltool](#). Please note that celltool requires Python 2.7. It is already installed on the VPTL Macs (all the cluster computers in the libraries and dorms) as well as the FarmShare **corn** machines (we do not recommend **rye** for this assignment). Below we give instructions on how to install these packages locally on your own machines, how to access them on the VPTL machines, and how to access them remotely on Farmshare. If you're having trouble setting up, do not hesitate to post to Piazza or come to office hours.

## Suggested workflow

### *OS X & Linux Users*

We recommend that OS X and Linux users first try installing the software on their own machine. If you run into problems, we recommend you work on the VPTL Macs. If you do not have access to the VPTL Macs, you can interface with the software remotely on the **corn** machines.

### *Windows Users*

Celltool is straightforward to install on Windows, but the workflow has not been tested as thoroughly. We recommend Windows users to use the VPTL machines as a first resort. If you do not have access to the VPTL machines, then we recommend you install locally following the instructions below. If you run into problems with local installation, we recommend working remotely on any of the **corn** machines.

## Working on VPTL Macs

The VPTL Macs have all the necessary software packages already installed. Boot up terminal and get started!

## Working remotely

For this assignment, please use FarmVNC on the **corn** machines. `ssh` into any of the corn machines and setup FarmVNC as follows:

```
$ ssh your-sunid@corn.stanford.edu
$ corn04:~> module load farmvnc
$ corn04:~> farmvnc 1440x900 # choose appropriate resolution for your screen
```

If after you connect to FarmVNC, the desktop comes up but the launcher bar is missing from the side panel, run these few commands to get things working again. First, press 'ctrl + alt + t' to bring up a terminal. Inside of the terminal run:

```
$ corn04:~> dconf reset -f /org/compiz; setsid unity
```

To start using celltool, you must load it as a module (do this every time you login):

```
$ corn04:~> module load celltool
```

You should be good to go with the rest of the assignment! Copy the assignment 3 zip file and unzip it as follows:

```
$ corn04:~> cp /afs/ir/class/cs279/www/assignments/assn3.zip ~/
$ corn04:~> unzip assn3.zip
```

## Working on your own OSx/Linux machine

*Install PIL (Python Imaging Library), NumPy, SciPy, and matplotlib:*

First check if you already have these packages. In terminal, type: `python` and once inside the python interpreter, type `import numpy, scipy, matplotlib, PIL`. If you don't get any import errors, go on to installing celltool. **Note that celltool requires Python 2.7!** If you do not have Python 2.7, continue with the instructions below.

If you do not have these packages or Python 2.7, you have two options (Anaconda or pip). We recommend Anaconda, because the installation is very straightforward and it has all the necessary packages.

### **Option 1: Anaconda**

Download & install [Anaconda \(Python 2.7\)](#) for MacOS or Linux.

### **Option 2: pip**

In terminal, type: `pip install Pillow numpy scipy matplotlib`. If you do not have pip or you get an error, then:

- I. Install [homebrew](#)\*\* by typing in the terminal:  
`ruby -e "$(curl -fsSL https://raw.githubusercontent.com/Homebrew/install/master/install)"`
- II. Type: `brew install python`
- III. In terminal, type: `pip install Pillow numpy scipy matplotlib`

\*\*Linux users can do the same, but substitute your package manager for brew.

*Install Celltool*

1. Download the celltool source code here: <http://zplab.wustl.edu/celltool/celltool-1.5.zip>
2. Unzip celltool-1.5.zip and go into the unzipped directory in terminal
3. Type: `python setup.py install`

4. There's a missing file in the celltool source code that may cause an Import Error later on in the assignment. Please download `kde.py` from the CS 279 website ([using this link](#)), and move it to the `celltool/numerics` directory where your python celltool library is installed (not the same location where it was downloaded). For me it was located here:  
`/usr/local/lib/python2.7/site-packages/celltool/numerics/`  
Or if you're using anaconda, it may be located here:  
`/~/anaconda/lib/python2.7/site-packages/celltool/numerics`

## Working on your Windows Machine

Anaconda's distribution of Python for Windows has all the packages you need for this assignment (not including celltool), and it's really easy to install!

1. Download and install [Anaconda](#) Python 2.7 ([Click Here for Python 2.7 Windows 64-bit](#))
2. Download and install [celltool](#) ([Click here for the Windows installer](#))

After you complete the assignment, if you no longer want Anaconda, follow the uninstall instructions here: <http://docs.continuum.io/anaconda/install>

\*\* Anaconda is easy to install for OS X and Linux users as well. Follow instructions here: <https://www.continuum.io/downloads>