

Cosmic Integration SSPC

LinkTree

<https://linktr.ee/syntheticstarpopconvolve>

How to make it work:

run & activate environment:

```
python3 -m venv sspe_env
```

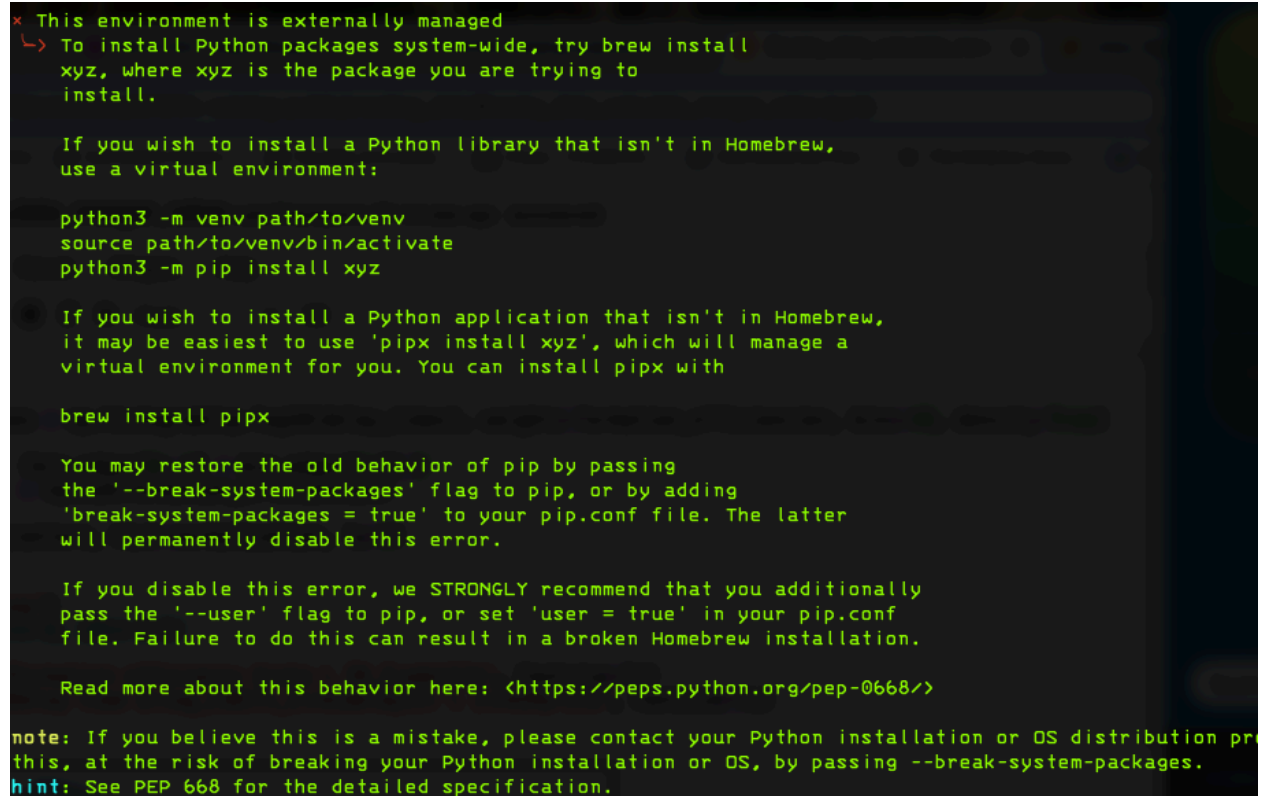
```
source sspe_env/bin/activate
```

Start jupyter from within the activated environment

```
jupyter notebook
```

What I had to do to make the installation from GitHub Work:

(1)



```
x This environment is externally managed
  -> To install Python packages system-wide, try brew install
      xyz, where xyz is the package you are trying to
      install.

      If you wish to install a Python library that isn't in Homebrew,
      use a virtual environment:

      python3 -m venv path/to/venv
      source path/to/venv/bin/activate
      python3 -m pip install xyz

      If you wish to install a Python application that isn't in Homebrew,
      it may be easiest to use 'pipx install xyz', which will manage a
      virtual environment for you. You can install pipx with

      brew install pipx

      You may restore the old behavior of pip by passing
      the '--break-system-packages' flag to pip, or by adding
      'break-system-packages = true' to your pip.conf file. The latter
      will permanently disable this error.

      If you disable this error, we STRONGLY recommend that you additionally
      pass the '--user' flag to pip, or set 'user = true' in your pip.conf
      file. Failure to do this can result in a broken Homebrew installation.

      Read more about this behavior here: <https://peps.python.org/pep-0668/>

note: If you believe this is a mistake, please contact your Python installation or OS distribution pro
this, at the risk of breaking your Python installation or OS, by passing --break-system-packages.
hint: See PEP 668 for the detailed specification.
```

distutils is deprecated in Python 3.10, so in my case it threw an error about installing this package (which happens in setup.py;

You can fix this by doing the following (source:

<https://stackoverflow.com/questions/69919970/no-module-named-distutils-util-but-distutils-is-installed>):

```
python3 -m venv path/to/venv
```

```
source path/to/venv/bin/activate
```

```
python3 -m pip install xyz
```

(2)

```

File "/opt/homebrew/Cellar/python@2.7.13.5/Frameworks/Python.framework/Versions/2.7/lib/python2.7/tarfile.py", line 295
    t = open(name)
File "/opt/homebrew/Cellar/python@2.7.13.5/Frameworks/Python.framework/Versions/2.7/lib/python2.7/tarfile.py", line 187
    return func(name, "r", fileobj, **kwargs)
File "/opt/homebrew/Cellar/python@2.7.13.5/Frameworks/Python.framework/Versions/2.7/lib/python2.7/tarfile.py", line 194
    fileobj = GzipFile(name, mode + "b", compresslevel, fileobj)
File "/opt/homebrew/Cellar/python@2.7.13.5/Frameworks/Python.framework/Versions/2.7/lib/python2.7/gzip.py", line 203, i
n __init__
    fileobj = self.myfileobj = builtins.open(filename, mode or 'rb')
FileNotFoundError: [Errno 2] No such file or directory: '/Users/floorbroekgaarden/Projects/GitHub/syntheticstellarpopconvolve/
dist/syntheticstellarpopconvolve-.tar.gz'

```

then it throws me an error called `FileNotFoundError: [Errno 2] No such file or directory:

`/Users/floorbroekgaarden/Projects/GitHub/syntheticstellarpopconvolve/dist/syntheticstellarpopconvolve-.tar.gz` because \$VERSION_NUMBER is not defined. This is because in ``install.sh`` the “grep -oP” -P is not recognized. This should be instead something else. But for now I fixed it by opening `install.sh` and adding a line

```

VERSION_NUMBER=$(grep -oP '__version__ = "\K[^\"]+' syntheticstellarpopconvolve/_version.py | awk '{print $1}')

```

Specific steps:

- I do in the terminal `subl install.sh` (but you can use a different text editor than sublime)
- then add the line “VERSION_NUMBER=\$(grep -oP '__version__ = "\K[^\"]+' syntheticstellarpopconvolve/_version.py | awk '{print \$1}')
- then I run `./install.sh` and it installs

```

Scroll Tabs in/bash
2
3 # Script to install syntheticstellarpopconvolve in the current venv
4
5 VERSION_NUMBER=$(grep -oP '__version__ = "\K[^\"]+' syntheticstellarpopconvolve/_version.py | awk '{print $1}')
6 VERSION_NUMBER="0.4" # fix for now
7
8 echo "installing syntheticstellarpopconvolve version $VERSION_NUMBER"
9
10 # we can only use python3 and python3, but allow
11 # the user to set these in environment variables
12 # PYTHON and PIP.
13 : "${PYTHON:=python3}"
14 : "${PIP:=pip3}"
15
16 # do stuff...
17 $PYTHON setup.py clean
18 cd docs
19 $PIP uninstall -y syntheticstellarpopconvolve
20 cd ../
21 $PYTHON setup.py build --force
22 $PYTHON setup.py sdist
23 $PIP install -v dist/syntheticstellarpopconvolve-$VERSION_NUMBER.tar.gz
24

```

#####

then to make it work in a random jupyter notebook, I open a jupyter notebook (where I load in the data I care about and have other scripts and did) (be sure to rerun the notebook) :

```
import os, copy, h5py
import astropy.units as u
import numpy as np
import pandas as pd
import sys
sys.path.insert(0, '/Users/floorbroekgaarden/Projects/GitHub/syntheticstellarpopconvolve')
from syntheticstellarpopconvolve import convolve, default_convolution_config,
default_convolution_instruction
from syntheticstellarpopconvolve.general_functions import generate_boilerplate_outputfile,
extract_unit_dict, temp_dir
and continued with the rest of the SSPC demo
# load filename
data_filename = os.getenv('EXAMPLE_DATA_USECASE_GW_FILENAME') if FULL_VERSION else None
example_usecase_GW_events_filename = data_filename if data_filename is not None else
str(files("syntheticstellarpopconvolve") / "example_data/example_data_usecase_gw.h5")
# load data
example_usecase_GW_events_data = pd.read_hdf(example_usecase_GW_events_filename,
key='data/combined_dataframes')
if data_filename is not None:
    example_usecase_GW_events_data['delay_time_values_in_years'] =
example_usecase_GW_events_data['formation_time_values_in_years']+example_usecase_GW_events_d
ata['merger_time_values_in_years']
if 'delay_time_in_years' in example_usecase_GW_events_data.columns:
    example_usecase_GW_events_data['delay_time_values_in_years'] =
example_usecase_GW_events_data['delay_time_in_years']
# query data
example_usecase_GW_events_data=example_usecase_GW_events_data.query('stellar_type_1==14 &
stellar_type_2==14')
example_usecase_GW_events_data=example_usecase_GW_events_data.query('comenv_counter==0')
#
log10_metallicity_centers = np.log10(example_usecase_GW_events_data['metallicity'].unique())
stepsize = np.diff(log10_metallicity_centers)
# TODO: use function
log10_bin_edges = np.concatenate([log10_metallicity_centers[:-1]-stepsize/2,
log10_metallicity_centers[-2:]+stepsize[:2]/2])
```

```
ADDED in CONVOLVE:  
import numpy as np  
np.round(
```